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ABSTRACT

The volume contains experimental instructional materials designed for teacher and handicapped student use with two man-machine communications systems, Cybertype and Cyber-Go-Round, developed as educational aids for the severely handicapped. Cybertype is a writing machine with various possible configurations of portable keyboards with a reduced number of keys. This permits written communication by persons who lack the motor ability or coordination to write legibly or to operate a standard typewriter keyboard. Lesson plans and exercises for learning the Cybertype keyboard constitute the major portion of the document. Also included are pilot experimental printed and pictorial slide message units for the Cyber-Go-Round system, a medium of communication utilizing slide-messages. (See also EC 030 060, EC 050 266, and EC 050 268-050 270.) (KW)

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STUDY OF MAN-MACHINE COMMUNICATIONS SYSTEMS FOR DISABLED PERSONS (THE HANDICAPPED)

VOLUME IV

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June 19, 1971

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
BUREAU OF EDUCATION FOR THE HANDICAPPED

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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
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C/R/I FINAL REPORT

Project No. 18-2003
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EXPERIMENTAL INSTRUCTIONAL MATERIALS FOR C/R/I FIELD CENTERS

Volume IV

HAIG KAFAFIAN

CYBERNETICS RESEARCH INSTITUTE
Washington, D. C. 20007

June 19, 1971

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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PREFACE

These experimental materials are designed as training aids to the teacher and student for "Cybertype" and "Cyber-Go-Round" CYBERCOM educational systems.

They are examples of the instructional material developed as adjuncts to the development of comprehensive training programs for a new family of educational aids for handicapped individuals.

This volume together with those listed below comprise the series of reports, demonstration guides, evaluative procedures, and instructional and training materials prepared under Project Nos. 7-0533 and 18-2003, Grant No. OEG 2-7-070533-4237 (607), for the Bureau of Education for the Handicapped, Office of Education, Department of Health, Education, and Welfare.

C/R/I Interim Report, 1968 . . . . . Interim
C/R/I Second Report, 1970 . . . . . Volumes I and II
C/R/I Final Report. 1971 . . . . . Volumes III
C/R/I Demonstration Guide and Materials . . . . . Volume IV
C/R/I Instruction Manual for 14-Key "Cybertype" Man-Machine Communications System . . . . Volume V
C/R/I Instruction Manual for 7-Key "Cybertype" Man-Machine Communications System . . . . Volume VI
C/R/I Instruction Manual for a "Cybertype" Tongue-Body Interface Man-Machine Communications System . . . . . Volume VII

A master errata sheet will be compiled from these volumes, and sent to their recipients. Your suggestions and help will make the experimental volumes more useful to researchers, teachers, and other readers, and will be of great value in preparing any revisions.

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INSTRUCTIONAL MATERIALS

FOR

MAN-MACHINE COMMUNICATIONS SYSTEMS

First Editions

of

C/R/I DEMONSTRATION GUIDE

SEVEN LITTLE DWARFS OF THE MOUNTAINS

THE MAGIC TALKING KEYS

EXPERIMENTAL PRINTED MESSAGE OUTLINE FOR

"CYBER-GO-ROUND"

EXPERIMENTAL PICTORIAL MESSAGE OUTLINE FOR

"CYBER-GO-ROUND"

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C/R/I DEMONSTRATION GUIDE

THE CYBERCOM™ FAMILY OF MAN-MACHINE COMMUNICATIONS SYSTEMS

FILMED FROM BEST AVAILABLE COPY

C/R/I DEMONSTRATION GUIDE

INTRODUCTION

Teachers are too well aware of the value of reminders and refreshers, which are always helpful, especially when asked at an inappropriate moment to demonstrate or provide instructions and details about innovative systems.

One of the principal members of the CYBERCOM family of man-machine communications systems is "Cybertype", a writing machine with various configurations of portable "keyboards" consisting of one, two, seven, fourteen, or other combinations of control keys which serve as the interface between the writing machine, or other automata, and the user. Recently, these "Cybertype" writing machines and associated instructional materials have been introduced to administrators, special educators, and severely disabled individuals in a classroom environment. They are finding wider applications and acceptance as valuable educational tools as more and more administrators, teachers, and parents throughout the country learn of their advantages and effectiveness for the benefit of severely disabled individuals who, heretofore, could not effectively write or type in any way.

One prerequisite to the success of your presentation is a thorough knowledge of the needs of these individuals, and the purposes and applications of CYBERCOM,and the various configurations of "Cybertype" portable keyboards or interface control systems.

To this end, it would be helpful if the objectives of your activities were described in relation to the achievements of implementing effective and realistic educational aids for handicapped students in the classroom and home environments.

The materials presented in the following paragraphs are intended to serve as reminders. It is assumed that you have reviewed the C/R/I Interim Reports, the C/R/I Instruction Manuals, and that you have received training in the operation of the system. Materials presented herein are essentially guides for you to follow, and to amend where applicable. Review them periodically.

Any educational system, no matter how effective, is not valuable to a potential user unless the teacher understands how to use the aid. The teacher should also have the affection and respect of the students in order that instructions are obeyed with diligence and discipline.

Firstly, review the two C/R/I Interim reports [1, 2]. Study each section carefully. Ask questions if something is not clear to you. Secondly, learn the "keyboard" codes, and how to use and connect all of the interfaces to the junction boxes for use with the "Cybertype" for classroom operations. All the interface codes can be learned quickly, and the keyboards are all easy to operate. There are about 10 basic keyboards, but a knowledge of how to operate one "Cybertype" keyboard applies to all, for they are all essentially the same.

Remember, each person in your audience will be viewing these educational aids, including the C/R/I Training and Instruction Materials, from a particular coign of vantage; hence, you may on occasion be compelled to be redundant or to describe a procedure in a totally different manner in order to get a point across. One prerequisite for your success is to become thoroughly familiar with the use of the system prior to any attempts to describe it to others.

The content and approach to each specific demonstration may depend on the participants, whether students, administrators, general or special educators, psychologists, scientists, sociologists, engineers, therapists, parents, or others concerned with the education of handicapped individuals. Moreover, you should be at ease, and naturally take into account the personalities of those to whom you are communicating in arriving at a comfortable and appropriate dialogue.

Introduction

1. Film: INTERFACE
(Available from the C/R/I Film Library or BEH, HEW)
Viewing Time: 8 Minutes
Narrator: Jean Smith of NBC
Introduction: This is a 16mm color-sound film prepared and narrated by journalist Jean Smith, for the NBC TV Documentary Program, "PROBE". It was first presented in Washington, D. C. on TV Channel 4 following the

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1 Kafafian, Haig. Study of Man-Machine Communications Systems for the Handicapped. U.S. Office of Education, Bureau of Education for the Handicapped, Project No. 7-0533, First Interim Report, August 19, 1968.

2 Ibid. Study of Man-Machine Communications Systems for the Handicapped. U.S. Office of Education, Bureau of Education for the Handicapped, Project No. 18-2003, C/R/I Second Report, February 19, 1970.

Huntley-Brinkley Program on November 25, 1968. Although the film was prepared a few years ago, it provides the viewers with an introduction to activities at one of the C/R/I Field Centers working with severely disabled children.

It should be noted that CYBERCOM includes a broad spectrum of man-machine systems and instructional and training materials; the film "INTERFACE" deals solely with the "Cybertype" and "Cyber-Brailler". Nevertheless, it is one good way to introduce this family of educational aids to individuals who are intimately concerned with the education, rehabilitation, and vocational training of physically and/or neurologically disabled persons, and those with specific learning disabilities.

2. INTRODUCTION TO "CYBERTYPE"

"Cybertype" in one form, for example, uses an electric writing machine; it provides means for severely disabled persons to use a typewriter from a remote, portable interface or keyboard without disturbing the utility of its regular 49-key keyboard. It may also be used in the control of computational, environmental, communication, and life-support systems and devices.

Basically, the reduced number of keys of the "Cybertype" together with a simple programming code enables many individuals who lack the dexterity or coordination to write legibly, or who cannot operate a standard 49-key typewriter keyboard, to communicate in written form.

The "Cybertype" writing machines are composed of three basic elements:

(1) First, the "Input": It consists of the portable keyboard or interface. These interfaces are provided in different configurations and key combinations. An appropriate interface is selected to match the remaining motor capabilities of the disabled individual.

(2) Secondly, the "Throughput": It may be considered as the electro-mechanical means which permits conversion of the information programmed by the user to an appropriate output.

(3) Thirdly, the "Output": It may exist in the form of a sheet of typewritten print produced by an electric typewriting machine; or it may be a visual lamp display, such as the "Cyberlamp" or "Cyberlex", which shows the letters "cybertyped". The output may be an electric braille writer; it may be in magnetic or punched card or tape form, or a tape-recorded signal,

or in the form of palpable vibrations, or other output means. These, among others, are examples of the forms in which the user may deliver the information derived from the interface.

(4) Several typewriters and keyboards under the control of the teacher or student may be connected to one "monitor" typewriter. Up to ten or more different interfaces ordinarily may be employed in the classroom for group or individual instruction, together with one writing machine for monitoring purposes by the teacher, and as many writing machines as required for the students.

In one configuration of a "Cybertype" interface, two banks of 7 keys each are employed, i. e. one bank for use by each hand, fist, foot, prostheses, or other part of the body. These two banks of keys require a dual-concurrent input by the operator. That is, to produce a typewritten function, the user simultaneously depresses two keys, one key from each bank. In this manner, (since there are 7x7 or 49 distinct possible combinations), all the letters, symbols and typewriter functions available on a standard electric typewriter can be typed by using only the 14 keys of the portable "Cybertype" interface, instead of the 49 keys on the typewriter keyboard.

The coding in one arrangement corresponds to the frequency of use of the letters in the English language. For languages other than English, appropriate codes are employed. Thus, the user is introduced to the letter-keying positions in an order which corresponds to the frequency of letter usage. For example, if the keys on the left bank are considered the "Control Keys", the first "Control Key" has the possibility of being paired with any of the seven keys on the right bank which yields the "space" function and the letters "E", "T", "A", "O", "N", "I", in that order, which is the order of usage in the English language of these particular functions. Having learned these seven combinatorial pairs, beginners with a knowledge of word, phrase, and sentence structure may commence to compose their own words, phrases, and complete sentences. For example, "I ATE AT NOON" is composed of these six letters and the "space" function. Subsequently, the coding for the remaining "Control Keys" is introduced to the student.

Researchers at Cybernetics Research Institute together with the cooperation of teachers at C/R/I Field Centers throughout the United States have been engaged in the development of instructional and training material. This arrangement has been rewarding to the students and teachers, and has provided significant feedback anent the constraints and benefits of the system in an educational atmosphere.

A novel experimental instructional program used, incorporates a story designed around the characters, animals, and objects of a circus. The children learn the "Cybertype" code by associating the spatial positions of the keys of the interface with this circus environment. Teaching the "Cyber-Circus" story, has enabled many grade school children to learn the keying position for 26 letters of the English alphabet and the essential typing functions in about 20 half-hour sessions. Most of the children have learned all keying positions in less than ten hours of instruction; some students have learned how to "Cybertype" in less than two hours. One concept to remember is that the system functions in "real time" and the keying codes can be easily remembered and executed without key markings on the controls,or reference to any charts, indicating lights or other means.

One of the major advantages of the "Cybertype" portable-keyboard configurations is that the positions of the keys or controls may be arranged so that they "match" the remaining motor capabilities of the user. For example, in one configuration of 14 keys, the interface is divided into two banks with two separate groups of keys either mounted on a table, the arms of a wheelchair, or on the user's lap. In another interface arrangement with 7 keys, the interface keys are arranged all in a row, or 4 keys on top and 3 keys on the bottom of the keyboard. In still another arrangement for a classroom group of severely disabled students, the "keyboards" may consist of only one or two keys or controls, and all keyboards and typewriters may be connected together.

Whether the interface uses only one or two keys, the physical arrangements of the "keyboards" are many. Moreover, the spacing between the keys and key size varies from "small" to "large", depending on the user's needs. As an example, for operation by the fists, heels of the hands, toes, or feet, the interfaces which have more than one key are larger with increased spacing between the keys, and some have either reduced or enlarged keytop areas. For operation with fists or prostheses, there is a control-stick interface composed of one or two levers, each of which moves into different radial positions corresponding to distinct keying positions. For the visually impaired, the interface is "keyless" with contacts mounted on the user's fingers or gloves.

Individuals who do not have the motor capabilities to operate a bilateral keyboard, for use with two parts of the body, are provided with dual-input, unilateral interfaces which require motor control from only one part of the body. One keyboard arrangement of these types of "Cybertype" keyboards uses seven keys for typing and one error key for corrections.

The coding is essentially identical to that of the 14-key dual-concurrent interfaces, in that with the 7-key dual-sequential interface, the user depresses two keys, one following the other. The first key depressed on the 7-key interface corresponds to the input of the left bank of the dual-input 14-key interface; the second key depressed corresponds to one on the right bank of keys.

These keyboard arrangements are for severely disabled individuals who are capable of controlling only one part of the body, e.g. the knee, tongue, side of the head, nose, elbow, cheek, chin, limbs, or other single portions of the body with a motor capability which can be controlled.

For persons paralyzed from the neck down, various "Cybertype" keyboards are available for operation by the tongue. For example, with one type of tongue keyboard, one user paralyzed from the neck down as a result of poliomyelitis, uses her tongue to operate an eight "two-way" toggle switch,tongue keyboard located near her mouth and accessible to her tongue. A selection or "state-selector" key operated by a finger of her right hand is used with this type of tongue keyboard. She can type at about 22 words per mintue without fatigue. Prior to her introduction to "Cybertype", she was using a mouth stylus mounted on a standard typewriter keyboard, she tired rapidly when typing about 8 words per minute.

Note: A film showing the operation of these interfaces is available from the C/R/I library or from BEH.

Another version of the tongue keyboard utilizes a 7-key dual-sequential mouth interface which is operable by the person's tongue. Two keys when operated sequentially yield a letter or function.

Among other "Cybertype" interfaces are those which require only one key with sequential operation and/or those which operate from electrical signals derived from the body's muscles or the central nervous system.

3. INTRODUCTION TO "CYBERLAMP", "CYBERLEX", AND "CYBER-BRAILLER"

One form of "Cyberlex", the whole-word display, has the capability of visually presenting 8 to 16 letters at a time, thus enabling the students and teachers to view words, phrases, and portions of sentences as they are being "cybertyped". The "Cyberlamp", another form of display, is a "single-letter display" where each letter or function appears on a large matrix as it is typed.

The CYBER-BRAILLER, another member of the CYBERCOM family of man-machine communications systems, employs an IBM* electric braille typewriter. It may be used by sighted and visually impaired individuals alike, together with a standard IBM electric typewriter which has been equipped with "Cybertype", thereby producing both braille and printed output from a common keyboard. This arrangement permits sighted persons, who do not know braille, to type the message in braille, and retain a printed copy for themselves; or, the message may be typed by a blind person who wishes to retain the braille copy for himself, and at the same time, provide a printed copy for a non-braille reader.

4. Film: D. T. WATSON HOME FOR CRIPPLED CHILDREN
Viewing Time: 4 minutes

Introduction: This 16mm color film (no sound) was prepared in the spring of 1970. The film shows seven students from the D. T. Watson Home for Crippled Children of Leetsdale, Pennsylvania, participating in a group instructional program under the direction of Mrs. Anna Mae Gallagher. Each child practices on an "interface" matched to his remaining motor capabilities. Note that there is only one "Cybertype", and that all seven interfaces or "keyboards" are common to one machine.

As many typewriters and portable keyboards as needed, and a teacher's typewriter for monitoring purposes can be connected to any "Cybertype" writing machine system by the teacher without disabling the standard typewriter keyboards. When the teacher works with one child, she may, by means of a selection switch, disconnect all but the interface to be used. With some "Cybertype" systems equipped with switches, she may "turn-on" the assigned interface by means of a switch located at the rear of the keyboard. The "on" position of a switch on the keyboard selected indicates that the system is ready for operation. Children in the class may perform their practice exercises at the very same time, using, in turn, their individual interfaces and "Cybertypes", which are either disconnected or temporarily switched "off". In the event one student assigned to type activates the "Cybertype", and if it is desired that the teacher's monitor be the only one connected, then all of the other typewriters can be disconnected or switched "off". However, if the teacher wishes all students to see what is being typed, then all "Cybertypes" may be left "on".

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*IBM Trademark, International Business Machines, Inc., Armonk, New York.

(1) Subject H. K.: This 19 year old student has been diagnosed as having cerebral palsy, athetoid-spastic variety. She is a quadriplegic with "poor" coordination in all four limbs, but is able to develop sufficient controlled movements with her arms to operate this large, 14-key interface using the fists and heels of her hands. She is a remarkable, creative person. Notice that her left arm is more involved than her right, but both arms have improved in coordination through practice. When she first began to use the system, her left arm would fall to the side and she had to position it on the appropriate key by placing it on the keytop with her right arm. More recently she has adapted herself to another style interface which permits her to type more rapidly. For 16 years she studied at the D. T. Watson Home for Crippled Children, but she was unable to express herself effectively through writing in spite of her high intellectual potential. But now, taught to use the "Cybertype", she has written many creative poems, short stories, and letters, one of which was published in the 1970 C/R/I Second Report[1].

(2) Subject C. B.: This 15 year old girl has cerebral palsy with rigidity of the upper limbs, which makes it difficult for her to use her arms for any practical purpose. However, she retains fairly good coordination of her feet and legs, with which she is seen here operating keys of the large, dual-concurrent keyboard. Note how she strikes two keys by activating a key on one side of the interface with one foot and holding down that key while she operates a key on the other side of the interface with her other foot.

(3) Subject A. Y.: This 8 year old child is afflicted with "osteogenesis imperfecta". Her growth is severely stunted and her limbs are extremely weak, but she retains sufficient coordination which enables her to operate pairs of keys on the 14-key dual-concurrent interface using her one strong finger of each hand.

(4) Subject D. A.: This 13 year old child has cerebral palsy with spasticity in both arms. His motor coordination has improved according to his teachers, primarily through practice with the portable keyboard. Researchers and teachers are encouraged and believe that this student will soon be able to make the transfer to a standard electric typewriter keyboard.

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1 Kafafian, Haig. Study of Man-Machine Communications Systems for the Handicapped. U. S. Office of Education, Bureau of Education, for the Handicapped, Project No. 18-2003, C/R/I Second Report, February 19, 1970.

(5) Subject T. M.: This 13 year old youngster is diagnosed as having cerebral palsy, athetoid variety (involuntary movement). His manual coordination is not adequate for use of the finger operated interface so he is operating a control system with larger keys and increased spacing, scaled in size to match his performance capabilities. Note that he strikes pairs of keys using the fingers, fists or heels of his hands. Since his coordination is obviously better when he strikes those keys closer to his body, researchers have considered assigning him to a different interface, with all the keys positioned near his body.

(6) Subject K. L.: This 12 year old girl is also cerebral palsied, spastic paraplegic variety with flexion contractures of her hips and knees. Due to an added visual impairment, her 14-key finger-operated interface is positioned on an incline plane in order that she has more convenient access to it.

(7) Subject V. L.: This 14 year old girl has "arthrogryposis multiplex congenita". Note that she is typing on a 14-key keyboard with the backs and sides of her splints. The keys have been staggered to avoid hitting other keys with her splints.

The children in this program have been encouraged to use the "Cybertype" system for their daily classwork. The D. T. Watson Home for Crippled Children is the very first school in the United States to integrate this system into its daily curricula.

SEVEN LITTLE DWARFS OF THE MOUNTAINS

By
Anna Mae Gallagher

Deep in a far-away town, a town with three great mountain peaks, live seven little dwarfs; odd little men who wear bright-colored clothes and high pointed hats. These little men are gold diggers and spend their time working and digging for gold. They live together in a large white house which can be seen near the base of the third Mountain Peak.

This is a "Let's Pretend Story." It would be fun if we, with our imagination, could look in at these little dwarfs and pretend we can see and hear them. Their names are not only interesting but funny, for each name tells us something about that little person and the kind of dwarf he is.

Chapter I

Meeting the Seven Little Dwarfs

Space, their leader, is taller than the other little men. Space is loved by all the dwarfs because of his kindness to them. They are happy that they have such a great leader.

Eensie, the number two (2) dwarf, is well named as he is very small and the shortest of the dwarfs.

Talkie, the number three (3) dwarf, is always talking and getting into trouble.

Amos, the fourth (4) dwarf, is the clown of the group. He loves fun and is always playing tricks on the other little men or kidding around.

Owen, stands next to Amos. He is fifth (5) in the group. Owen is the worrisome one and always looks troubled.

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Noisy, the sixth dwarf (6), is fun to watch and hear. He is well named "Noisy" for everyone knows when he is around.

"I Will," the seventh (7) little fellow, seems to have a very strange name. All the other dwarfs named him "I Will" because he never says "No" when asked to do a favor. His only answer to any request is, "I Will." He is loved by all the little men.

The Dwarf Song

Space, the leader, is very kind
Eensie is shy and
Talkie won't mind
Amos jokes and laughts a lot
Owen worries on the spot
Noisy, Noisy makes such noise
"I Will" is the nicest of the boys.

Chapter II

Looking through our imaginary telescope, we can see much activity in this little mountain town. At the start of each day, the little dwarfs "line up" for inspection. Space calls each one by name. He sees that each little dwarf has his pick and other needs for the day.

The dwarfs have great respect for their leader. When each of their names is called, he mentions Space's number before answering his own name. It is like saying, "Sir, (1), I'm here."

The Pretended Roll Call

Space calls -

1 - 1

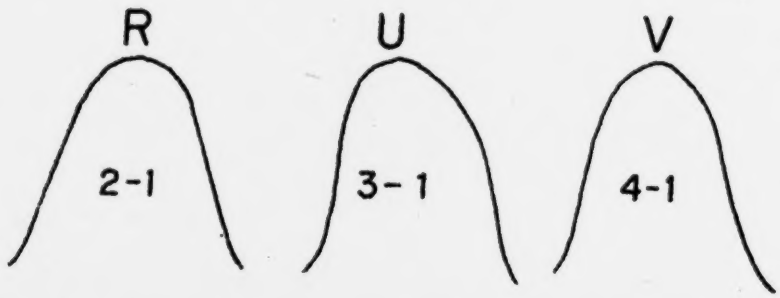
Name	Answer
Eensie	Not a sound, no answer, where is little Eensie? He must have slept late again today.

Talkie	1 - 3 here.
Amos	1 - 4 here.
Owen	1 - 5 here.
Noisy	1 - 6 here.
"I Will"	1 - 7 here.

(To the teacher: Have the children answer Space when each dwarf's name is called. In this way, memorization is aided.)

After the Roll Call, into the mountains the little dwarfs go, singing and whistling on their way. They dig, dig, dig the whole day long and love it.

The Three Great Mountain Peaks



Runty Eensie (E) is the supervisor of the R Mountain
Unruly Talkie (T) is the supervisor of the U Mountain
Vocal Amos (A) is the supervisor of the V Mountain

Chapter III

Runty Eensie (2)

Fixing our telescope at the right angle, we can see Eensie who slept (S) late, hurrying (H) as fast as he can to his work in the mine. Poor little Eensie has that one big fault. Every morning, he sleeps so soundly, he does not hear his alarm clock ring. When he finally awakens, he hurries to work. As he arrives at the mine, he digs and digs (D) very fast to make up for lost time. Can Eensie win? Can he catch up? Yes, he can. He is a very lucky fellow for he does finish each day on time.

Runty Eensie's Day

Enters the R Mountain	R	(2 - 1)
Sleeps late	S	(2 - 2)
Hurries to his	H	(2 - 3)
Digging date	D	(2 - 4)
Can he win?	C	(2 - 5)
Lucky man	L	(2 - 6)
Mines gold as fast as he can	M	(2 - 7)

Runty Eensie's Song

Runty Eensie
Sleeps late
Hurries to his
Digging date.
Can he win?
Lucky man
Mines gold as fast as he can.

(To the teacher: When singing the song or telling the story, have the children strike the keys as they mention the key words. For example, with Runty Eensie, hit keys 2 and 1; when Sleeps late is mentioned, the keys 2 and 2; and so on with each of the key letters.)

Chapter IV

Talkie (3)

Talkie, the third dwarf, is the boss of the U Mountain. He is always on time for work and he wants everyone to know it. Talkie flaps a lot. When he talks, his mouth moves as fast as the flapping wings of a bird. His pointless yelling annoys his fellow dwarfs. We say "pointless" because this word means he had no reason to yell. Bad behavior and grumpy ways make Talkie very willful as he seldom obeys. Willful is another word which means "stubborn." We need the letter W for our story; so we will think of Talkie as willful because he is usually disobedient. Talkie with all his faults does try to change and to behave.

Talkie's Day

Enters the U Mountain	U	3 - 1
Flaps a lot	F	3 - 2
Pointless	P	3 - 3
Yelling	Y	3 - 4
Bad behavior	B	3 - 5
Grumpy ways	G	3 - 6
Willful Talkie never obeys	W	3 - 7

Talkie's Song

Unruly Talkie
Flaps a lot
Pointless
Yelling on the spot
Bad behavior
Grumpy ways
Willful Talkie never obeys.

Chapter V

Amos (4)

Amos, the fourth dwarf is the boss of the V Mountain. He is such a happy fellow, singing many merry tunes and joking while he is digging. The little dwarfs are very fond of him and many times they call him Vocal Amos. When one is singing or joking, we say that that person is vocalizing because the word VOCAL means having or using a voice. Since we need the letter "V" in our story, it is well that we understand what the word VOCAL means. It is a good name for Amos.

If Space, their leader, hears Amos joking and giggling while digging and keeping the other dwarfs from doing their work, he scolds him. "I love fun too," says Space, "but fun has its place, and it is not when one is working or digging." Poor happy Amos felt sad and he was not pleased with his leader. "Zounds," says Amos, "What's the use, just X me out." His sadness does not last long for Amos becomes his merry

self each evening. He keeps everyone in the big white house always happy and gay.

Amos's Day

Enters the V Mountain	V	4 - 1
Jokes while digging	J	4 - 2
"Keep still," says Space	K	4 - 3
"Stop that giggling."	.	4 - 4
"Quiet, please," the leader shouts	Q	4 - 5
"Zounds," says Amos	Z	4 - 6
"X" me out.	X	4 - 7

Amos's Song

Vocal Amos
Jokes while digging
Keep still
Stop that giggling.
"Quiet please," the leader shouts.
"Zounds," says Amos,
"X me out."

(Refer to page 4, "To the teacher.")

Chapter VI

Owen (5)

Owen, the worrisome dwarf, works in the office of the mines. Owen's first chore each day is to go BACK Space (5-1), to make a list of how much gold each dwarf has mined or dug. Walking over (-) to the mine was his second chore (5-2), as he had to check on the gold. Many times he finds that some of the dwarfs have equal (=) work (5-3). Each day, Owen places a high mark (') on his list for the dwarfs who mined or dug the most gold. This was always Owen's fourth chore (5-4). When it is noon, he eats his lunch. His fifth chore then means he has to pause (,) for his lunch time (5-5). After lunch, Owen's sixth chore (5-6)

comes almost at the end of the day. On his desk, in his office, he places his work list in a big book (/). "/" is on the interface (5-6). On an upper shelf (upper case), over this big book (/) can be found a QUESTION BOX (?).

(To the teacher: In the case of symbols and punctuation marks in the story, one must use his or her imagination and aid the children to picture the activity as described. The symbol "/" represents the book on Owen's desk. The shift or upper case of the symbol "/" is the question mark (?). It is no problem to picture a shelf above where the book is placed. This, then, would not be difficult for a child to understand what is meant by the upper case. In many offices, there are question boxes or boxes where the workers may insert some question he would like answered. Thus the SHIFT on the symbol "/" is the question mark.)

At the close of the day, his seventh and last chore is to review the work that the men did that day. He has to keep TAB on each dwarf. Owen really has a big job to do. (5-7).

Owen's Day

His first chore of the day is to go	BACK SPACE	5 - 1
He walks over (-) to the mines for the dwarfs' records.	- (Hyphen)	5 - 2
He often finds that many dwarfs have an equal (=) amount of gold.	= (Equal)	5 - 3
A high rating (') is given for the best digger.	' (Apostrophe)	5 - 4
He pauses (,) from work only for lunch.	, (comma)	5 - 5
A record book (/) is on Owen's desk.	/ (Slash)	5 - 6
Above the book (upper case) is a question box (?).	? (Question Mark)	5 - 6
Owen kept TAB	(TAB)	5 - 7

Owen's Song

BACK SPACE is Owen's first chore
Goes over for records, to store
Often equal work is found
A high rating goes to the best digger, and then
A pause for lunch or dinner
A book on the desk has records of work
TAB is kep on Owen, as he is the best office clerk.

Chapter VII

Noisy (6)

Noisy has a great responsibility at the mine. Each day his first chore is to SHIFT over to the mine and UNLOCK the doors before the little men report for work (6 - 1). Noisy is not very quiet about his work. At 8 a.m., he whistles up to the mine and UNLOCKS the doors (6 - 2). At 9 a.m. each day, he calls, in a loud voice, each dwarf by name. He wishes to check to see if each little man is at work digging for gold (6 - 3). All is still for a few minutes because NOT ONE (0) of the dwarfs answered Noisy (0 is 6 - 4). They do not like him to shout so loud. Finally, the dwarfs answered saying, "Yes, Noisy, we are all here." Knowing that all was well, Noisy straightened his hat (;) (the symbol for semicolon " ; " is 6 - 5 on the interface) then Noisy RETURNS (6 - 6) to his office. Noisy's last chore each day is to shift over to the mine doors and lock them each evening. (Our clue here is 6 - 7 for shift lock.)

Noisy's Day

Shifts over and Unlocks Mine doors	SHIFT UNLOCK	6 - 1
At 8 a.m., he begins his chores	8	6 - 2
At 9 a.m., he calls to see if all the little men were digging	9	6 - 3
A cold zero (0) atmosphere prevails	0	6 - 4
His chores completed, he straightens his hat on his head and	;	6 - 5
RETURNS to his office	RETURN	6 - 6
Last chore for the day is to shift over and Lock the mine doors	SHIFT LOCK	6 - 7

Noisy's Song

Shift Unlock, Noisy opens the door
8 a.m., what a bore
9 a.m., they
0 (zero) in
; (semi-colon); what a din.
Return for supper and the night
Shift Lock again is Noisy's delight.

(To the teacher: refer to page 4.)

Chapter VIII

"I Will" (7)

"I Will's" first duty each day is to place the gold that is mined in the office safe. (This clue represents the symbol of brackets. On some typewriters, there is another letter or symbol. Check your typewriter for any change.) Brackets 7 - 1.

"I Will's" Day (7)

Places the gold in the office safe	7 - 1
Writes progress made at the mine at 2 p.m.	7 - 2
Writes progress made at the mine at 3 p.m.	7 - 3
Writes progress made at the mine at 4 p.m.	7 - 4
Writes progress made at the mine at 5 p.m.	7 - 5
Writes progress made at the mine at 6 p.m.	7 - 6
Writes progress made at the mine at 7 p.m.	7 - 7

"I Will's" Song

"Brackets surround the gold," says "I Will"
2 to dig
3 to drill
4 to shovel
5 to load
6 to store
7 boxes behind the door.

(To the teacher: Suggest to the children that the 7 key could be a number control key. Note that the 7 comes before the number you wish up to number 7 and with the exception of number one. The number 2 would be, 7 and 2; number 3, 7 and 3; number 4, 7 and 4, and so on.)

Brackets --- 7 - 1, this need not be confused with the number one.
1 --- 2 - 6 (1, lucky man)

2 --- 7 - 2
3 --- 7 - 3
4 --- 7 - 4
5 --- 7 - 5
6 --- 7 - 6
7 --- 7 - 7
8 --- 6 - 2
9 --- 6 - 3
0 --- 6 - 4
10 --- 6 - 6 and 6 - 4

Cybernetics Research Institute

EXPERIMENTAL INSTRUCTIONAL MATERIALS
PROJECT NO. 18-2003
OFFICE OF EDUCATION
BUREAU OF EDUCATION FOR THE HANDICAPPED
H.E.W.

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THE MAGIC TALKING KEYS

by Isabelle La Mont

WE ARE MAGIC TALKING KEYS
AND WE HAVE A JOB TO DO
WE CAN TYPE MOST ANY LETTERS
WHEN WE TEAM UP TWO BY TWO

SEE US STANDING IN A ROW
TOUCH US NOW TO SEE US GO
ONE BY ONE WILL NEVER DO
WE WORK IN TEAMS, TWO BY TWO

1

LISTEN NOW TO HAPPY ONE
HE'LL SHOW YOU HOW TO START YOUR FUN

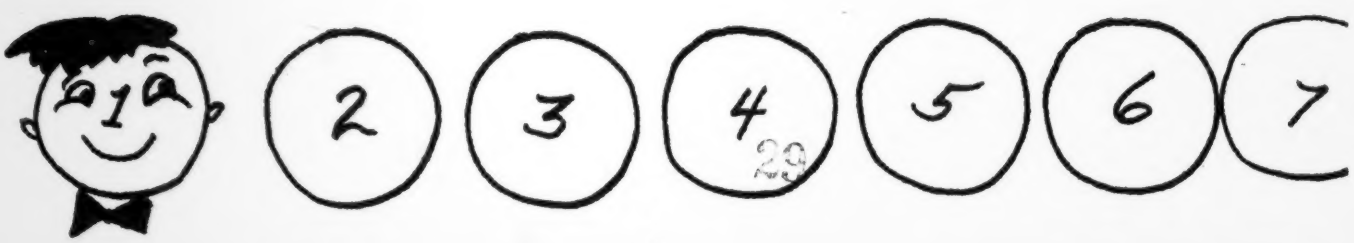
BETWEEN MY EYES ON MY FACE
YOU CAN FIND A LITTLE "SPACE"

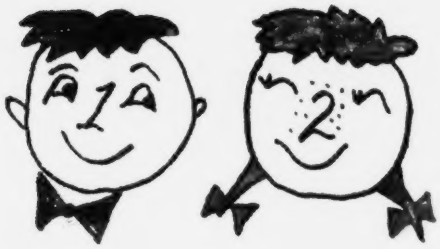
BETWEEN THE WORDS IN ANY LETTER
SPACES HELP YOU READ MUCH BETTER

Dear John,
How are you?
Love, Pat

WHEN YOU PUSH
MY KEY DOWN TWICE
I MAKE A SPACE
THAT'S VERY NICE

PUSH ME DOWN, ONCE MORE AGAIN
TO MAKE A "SPACE" JUST NOW AND THEN





THAT'S ONE JOB I DO FOR YOU

NOW WE'LL TEAM WITH NUMBER "TWO"

I WILL TELL YOU WHAT TO DO

FIRST PRESS THEN PRESS

2

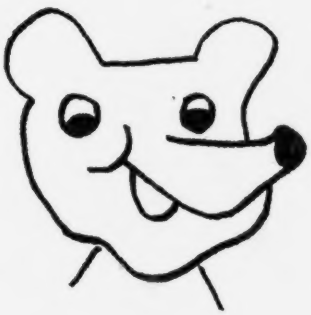
STOP AND LOOK AND YOU CAN SEE

WE HAVE TYPED THE LETTER "E"

FIRST PRESS 1 THEN PRESS 2

WE WILL MAKE AN "E" FOR YOU

E



LOOK AND SEE. WE MADE AN "E"

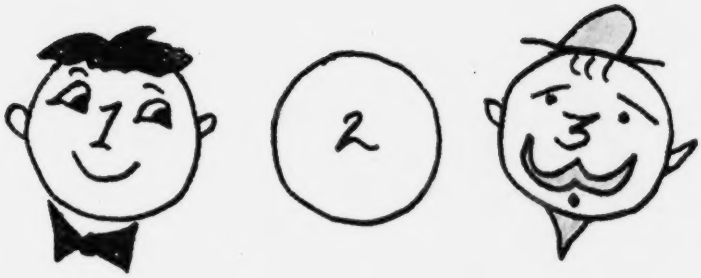
NOW MOVE ON TO NUMBER "THREE"

ONE AND "THREE" MAKES A "T"

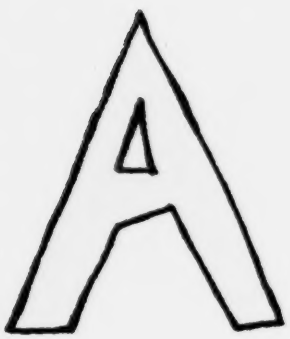
TRY IT NOW AND YOU'LL SOON SEE

FIRST HIT "ONE," THEN HIT "THREE"

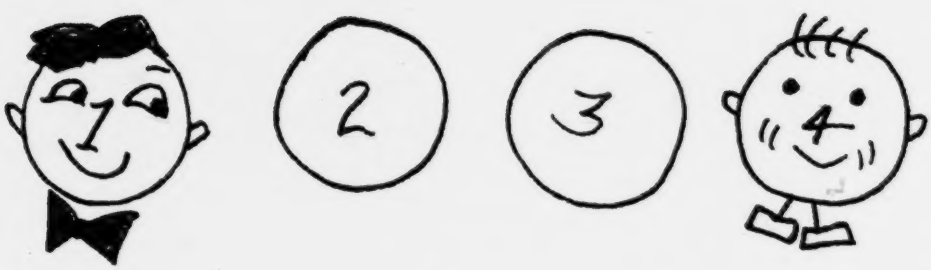
THIS IS HOW WE TYPE A "T"

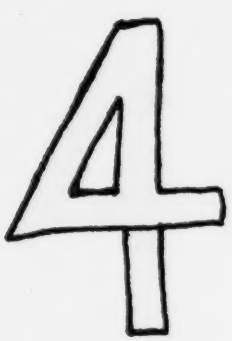


HAVING FUN? LET'S LEARN SOME MORE
TIME TO MOVE TO NUMBER "FOUR"



"ONE" THEN "FOUR" NEXT I SAY
THEY WILL TYPE THE LETTER "A"
FIRST HIT "ONE," THEN HIT "FOUR"
MAKE AN "A" YOU'RE LEARNING MORE



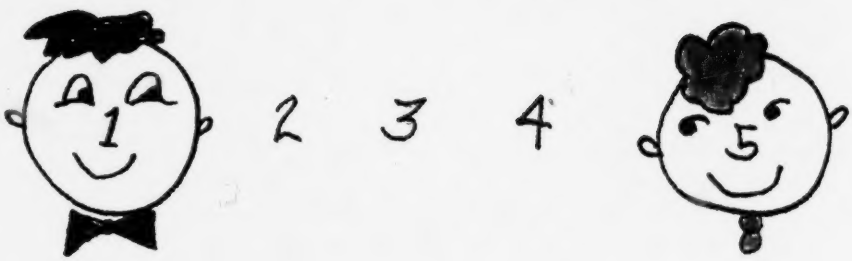


THREE AND FOUR, MAN ALIVE!

NOW TEAM UP WITH NUMBER "FIVE"

HIT "ONE" HIT "FIVE GO GO GO

THEY WILL TYPE THE LETTER "O"



FOUR AND FIVE, NEXT COMES "SIX"

TELL ME, DO YOU LIKE OUR TRICKS?

"ONE" JUMP TO "SIX" AND THEN,

THEY WILL TYPE THE LETTER "N"

2 3 4 5

34

"SEVEN" IS LAST, NOW TRY, TRY, TRY

"ONE" AND "SEVEN" TYPE AN "I"

HIT "ONE" HIT "SEVEN" DO YOU KNOW WHY?

TEAM WORK HELPS THEM TYPE AN "I"

2 3 4 5 6

NUMBER "ONE" YOUR JOB IS DONE

YOU AND YOUR TEAM HAVE HAD YOUR FUN

NOW THAT WE HAVE PLAYED YOUR GAME

ALL THE LETTERS WE WILL NAME

1 AND 1 MAKES A "SPACE"

1 AND 2 MAKES AN "E"

1 AND 3 MAKES A "T"

1 AND 4 MAKES AN "A"

1 AND 5 MAKES AN "O"

1 AND 6 MAKES AN "N"

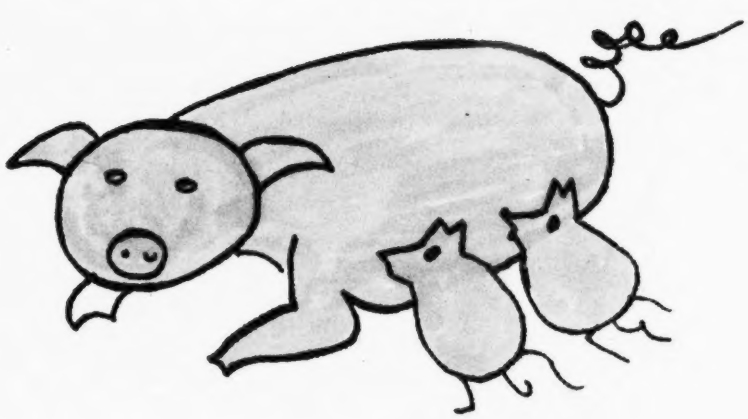
1 AND 7 MAKES AN "I"

NOW, A SONG FOR YOU TO SING

TO HELP YOU LEARN JUST EVERYTHING

READY, SET, AND AWAY WE GO

"MAC DONALD'S FARM" IS THE TUNE YOU KNOW



37

SONG: SEVEN KEYS ALL IN A ROW

TUNE: OLD MAC DONALD HAD A FARM

SEV - EN KEYS ALL IN A ROW E I E I O

TEAM THEM UP AND AWAY WE GO E I E I O

WITH A 1 - 1 HERE, AND A 1 - 1 THERE

HERE A 1 THERE A 1 MAKE A [SPACE] WITH 1 - 1

E T A AND O N I E I E I O

SEV - EN KEYS ALL IN A ROW E I E I O

TEAM THEM UP AND AWAY WE GO E I E I O

WITH A 1 - 2 HERE, AND A 1 - 2 THERE

HERE A 1 THERE A 2 MAKE AN ["E"] WITH 1 - 2

E T A AND O N I E I E I O

SEV - EN KEYS ALL IN A ROW E I E I O

TEAM THEM UP AND AWAY WE GO E I E I O

WITH A 1 - 3 HERE, AND A 1 - 3 THERE

HERE A 1 THERE A 3 MAKE A ["T"] WITH 1 - 3

E T A AND O N I E I E I O

SEV - EN KEYS ALL IN A ROW E I E I O

TEAM THEM UP AND AWAY WE GO E I E I O

WITH A 1 - 4 HERE, AND A 1 - 4 THERE

HERE A 1 THERE A 4 MAKE AN ["A"] WITH 1 - 4

E T A AND O N I E I E I O

SEV - EN KEYS ALL IN A ROW E I E I O

TEAM THEM UP AND AWAY WE GO E I E I O

WITH A 1 - 5 HERE, AND A 1 - 5 THERE

HERE A 1 THERE A 5 MAKE AN "O" WITH A 1 - 5

E T A AND O N I E I E I O

SEV - EN KEYS ALL IN A ROW E I E I O

TEAM THEM UP AND AWAY WE GO E I E I O

WITH A 1 - 6 HERE, AND A 1 - 6 THERE

HERE A 1 THERE A 6 MAKE AN "N" WITH 1 - 6

E T A AND O N I E I E I O

SEV - EN KEYS ALL IN A ROW E I E I O

TEAM THEM UP AND AWAY WE GO E I E I O

WITH A 1 - 7 HERE, AND A 1 - 7 THERE

HERE A 1 THERE a 7 MAKE AN "I" WITH 1 - 7

E T A AND O N I E I E I O

(NOTE: WHEN THE NEXT SECTION OF THE CODE IS TAUGHT, THE LETTERS WILL BE CHANGED TO CORRESPOND.)

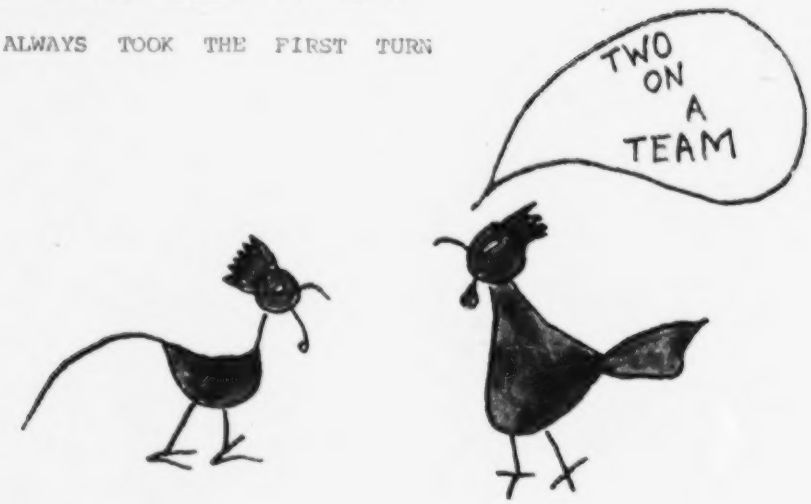
BEFORE GOING ON TO GAME NUMBER "2"

LET'S GIVE OUR SCORE A LITTLE REVIEW

EACH TIME WE HAD A NEW LETTER TO LEARN

NUMBER "1" KEY ALWAYS TOOK THE FIRST TURN

1

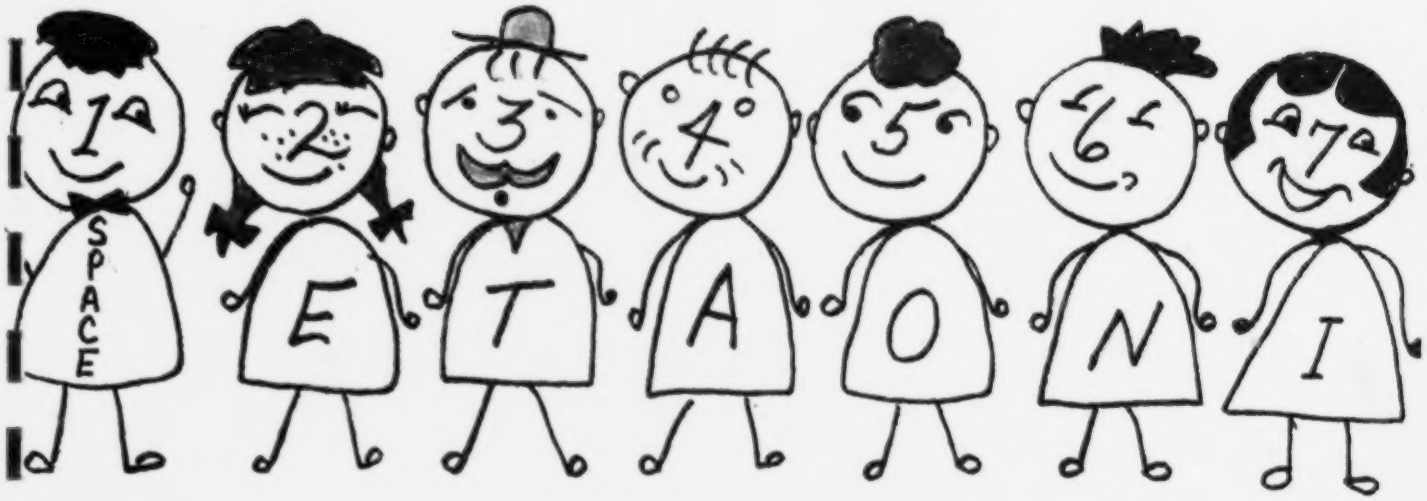


FIRST WE LEARNED TO MAKE A SPACE

THEN WE LOOKED AT THE NOSE ON EVERY FACE

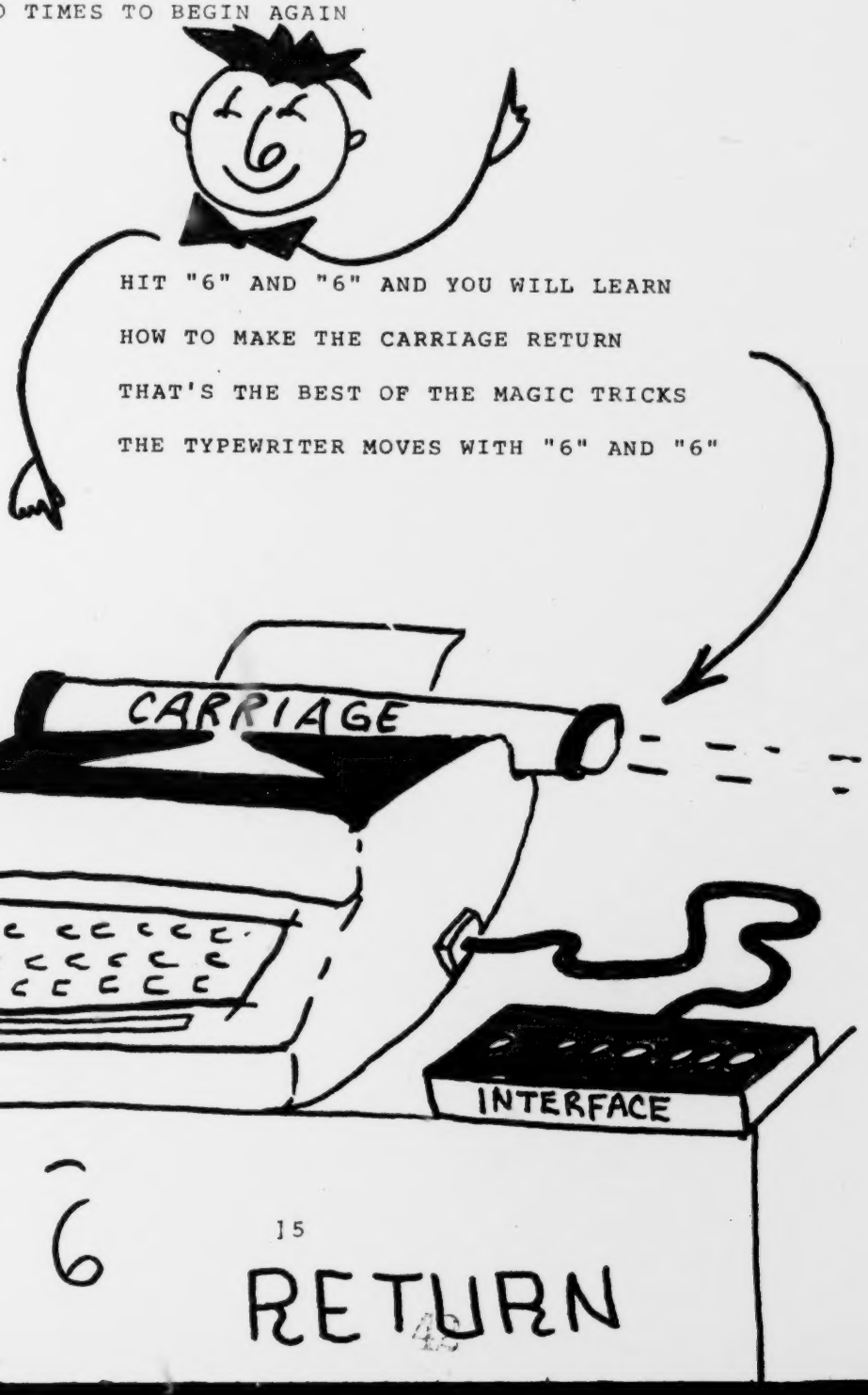
WE REMEMBER E T A AND O N I

AS WE WAVE NUMBER "1" GOOD-BYE



NOW WE'RE READY FOR NUMBER "2" GAME
AND SEVEN NEW LETTERS SHE WILL NAME
WORK IN TEAMS, THAT'S THE THING TO DO
EACH TIME WE START WITH NUMBER "2"

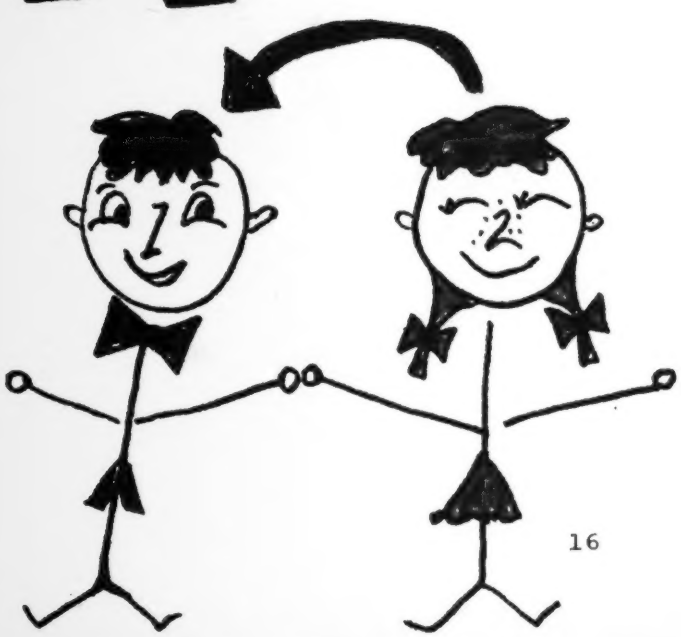
THERE'S SOMETHING ELSE THAT WE MUST DO
BEFORE GOING ON TO GAME NUMBER TWO
WHEN YOU TYPE TO THE PAPER'S END
HIT "6" TWO TIMES TO BEGIN AGAIN


HIT "6" AND "6" AND YOU WILL LEARN
HOW TO MAKE THE CARRIAGE RETURN
THAT'S THE BEST OF THE MAGIC TRICKS
THE TYPEWRITER MOVES WITH "6" AND "6"
CARRIAGE
INTERFACE
6 6
RETURN

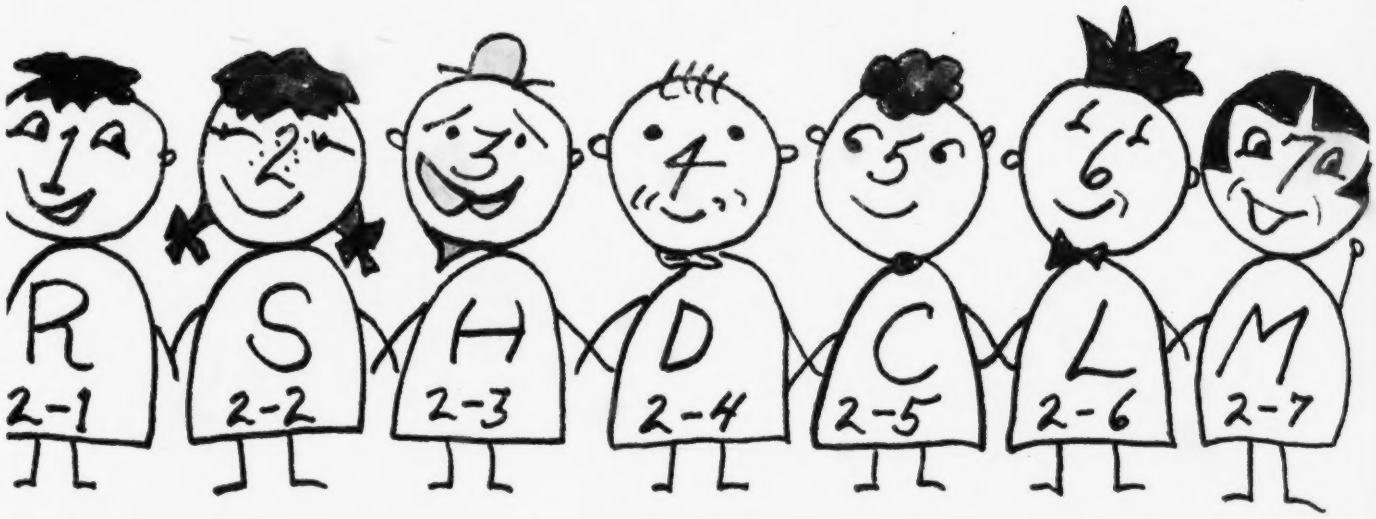
GAME NUMBER TWO

NOW "CAPTAIN" "2" WILL WORK FOR YOU
SHE WILL TELL YOU WHAT TO DO
"2" TEAMS UP WITH ALL THE KEYS
TO LEARN SOME MORE, WATCH "2" PLEASE

HIT "2" FIRST, GO BACK TO "1"
"R" IS THE LETTER YOU HAVE DONE
"2" THEN "1" MAKE AN "R"
PRACTICE NOW AND YOU'LL GO FAR



"2" LEADS NOW, SO THIS TIME
WE HIT "2" FIRST FOR EVERY RHYME
THIS NUMBER "2" MAGIC TALKING KEY
TEAMS UP TO MAKE THE LETTERS YOU SEE



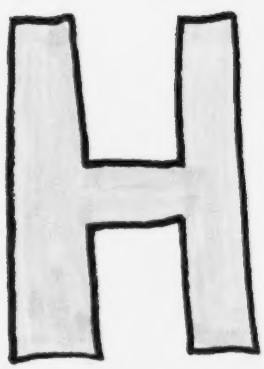
HIT "2" ONCE, HIT "2" AGAIN
"S" IS MADE WITH THE TYPING PEN
WHEN WE HIT THE "2" KEY TWICE
WE TYPE AN "S" THAT IS VERY NICE

NOW FROM "2" MOVE ON TO "3"

THE LETTER "H", LOOK AND SEE

HIT "2" FIRST, THEN HIT "3"

YOU TYPE AN "H" QUIT EASILY

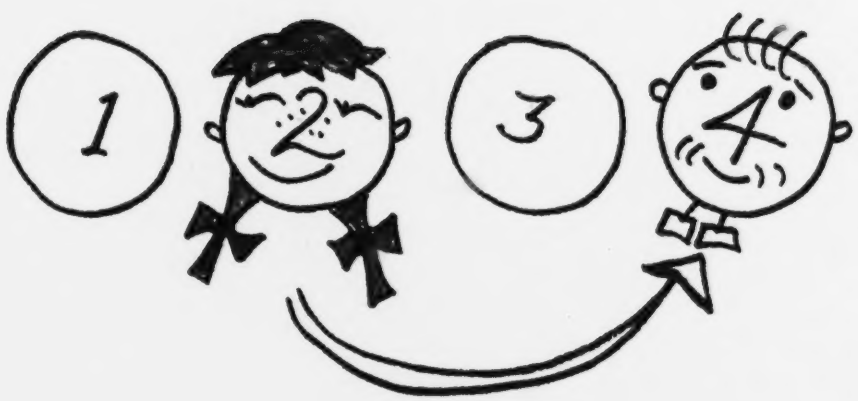


NEXT HIT "2" AND JUMP TO "4"

"D" IS THE LETTER, "D" FOR DOOR

"2" AND "4" MAKE A "D"

JUMPING OVER KEY NUMBER THREE

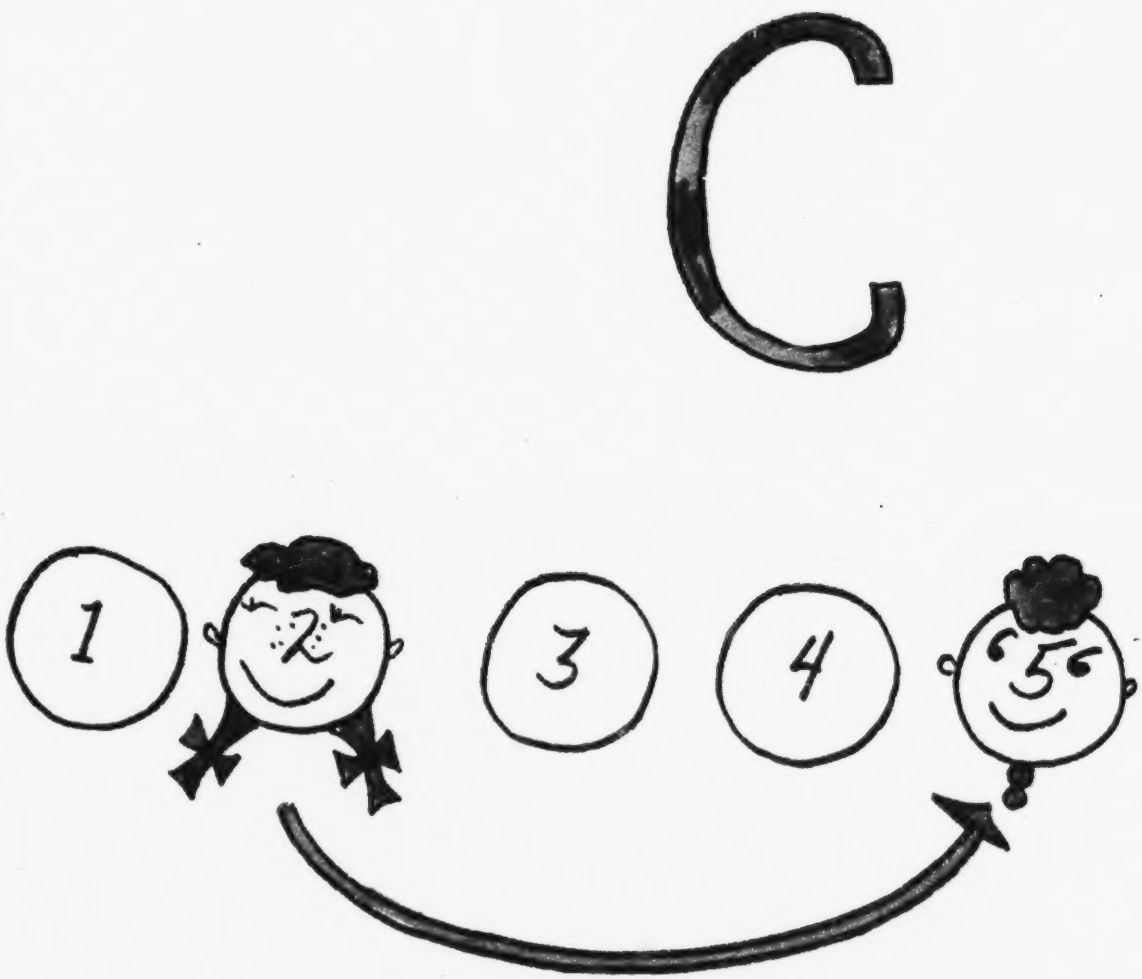


BACK TO "2" THEN HIT "5"

THIS IS FUN - JUMP AND DIVE

HIT "2" FIRST, JUMP TO "5"

A NICE ROUND "C" WILL ARRIVE

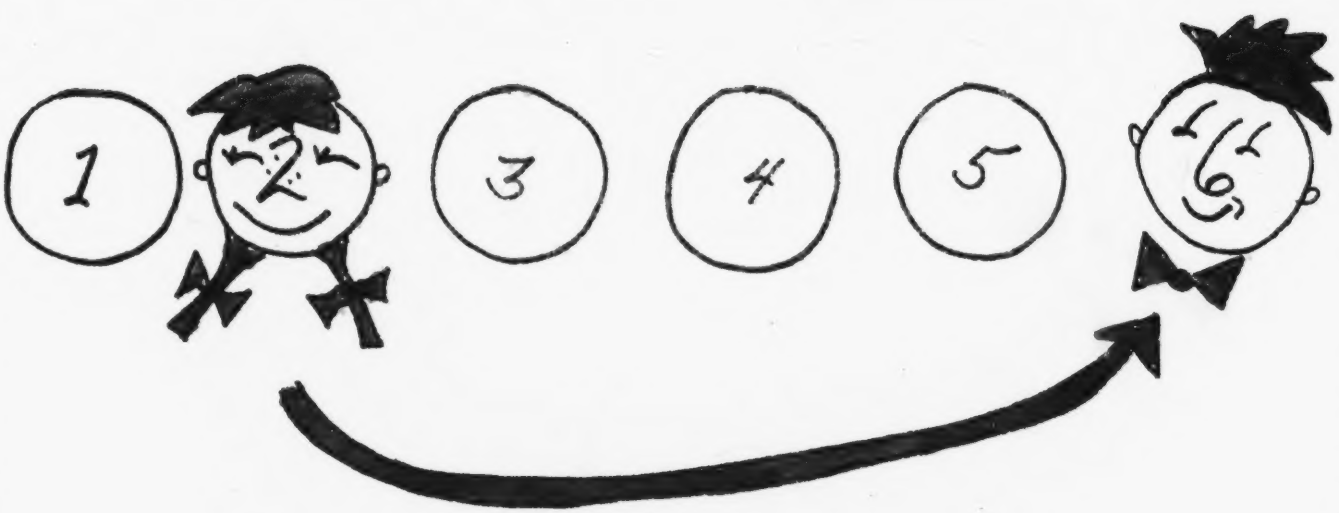


"2" THEN "6" RING A BELL

THEY WILL MAKE THE LETTER "L"

HIT "2" FIRST, THEN HIT "6"

"L" IS FOR ALL LOLLIPOP LICKS

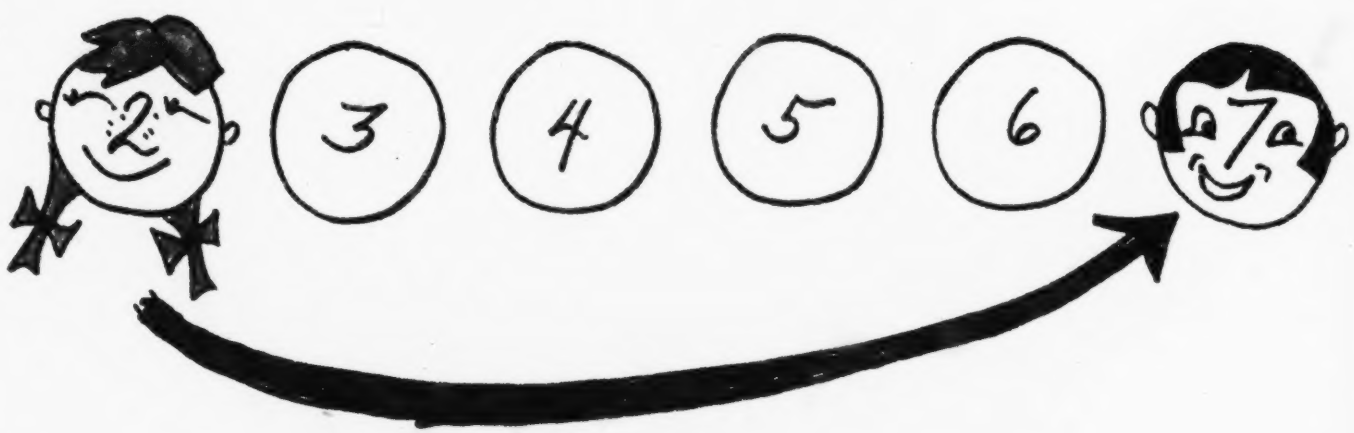


LAST OF ALL FOR CAPTAIN "2"

JUMP IS WHAT YOU HAVE TO DO

"2" THEN "7" OVER ALL OF THEM

NOW YOU TYPE THE LETTER "M"



M

NOW "2" IS FINISHED WITH HER TURN

SEVEN NEW LETTERS WE DID LEARN

LET'S GO OVER THEM ONE BY ONE

HIT "2" FIRST UNTIL YOU'RE DONE

2 - 1 R

2 - 2 S

2 - 3 H

2 - 4 D

2 - 5 C

2 - 6 L

2 - 7 M

JUMP

TIME FOR MUSIC

EVERY BODY LIKES TO SING,

SINGING MAKES US HAPPY

MAC DONALD'S FARM IS A TUNE WE KNOW

THESE LETTERS MAKE IT SNAPPY

Tune: (OLD MAC DON ALD HAD A FARM) E I E I O

Sing: "R" "S" "H" "D" "C" ":" "," E I E I O

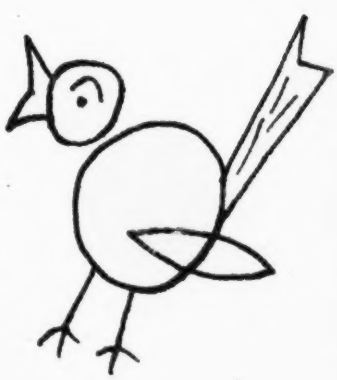
R

SEV EN KEYS ARE ALL OF THEM E I E I O

WITH A 2 - 1 HERE, AND A 2 - 1 THERE

HERE A 2 THERE A 1 MAKE AN "R" WITH 2 and 1

2 - 1 "R" "S" "H" "D" "C" "L" "M" E I E I O



"R" "S" "H" "D" "C" "L" "M" E I E I O

S

SEV -EN KEYS MAKE ALL OF THEM E I E I O

WITH A 2 - 2 HERE AND A 2 - 2 THERE

HERE A 2 THERE A 2 MAKE AN "S" WITH 2 AND 2

2 - 2 "R" "S" "H" "D" "C" "L" "M" E I E I O

H

"R" "S" "H" "D" "C" "L" "M" E I E I O

SEV- EN KEYS MAKE ALL OF THEM E I E I O

WITH A 2 - 3 HERE AND A 2 - 3 THERE

HERE A 2 THERE A 3 MAKE AN "H" WITH 2 AND 3

2 - 3 "R" "S" "H" "D" "C" "L" "M" E I E I O

D

2 - 4

"R" "S" "H" "D" "C" "L" "M" E I E I O

SEV - EN KEYS MAKE ALL OF THEM E I E I O

WITH A 2 - 4 HERE AND A 2 - 4 THERE

HERE A "2" THERE A "4" MAKE A "D" WITH "2" AND "4"

"R" "S" "H" "D" "C" "L" "M" E I E I O

C

2 - 5

"R" "S" "H" "D" "C" "L" "M" E I E I O

SEV EN KEYS MAKE ALL OF THEM E I E I O

WITH A 2 - 5 HERE AND A 2 - 5 THERE

HERE A 2 THERE A "5" MAKE A "C" WITH 2 AND 5

"R" "S" "H" "D" "C" "L" "M" E I E I O

L

2 - 6

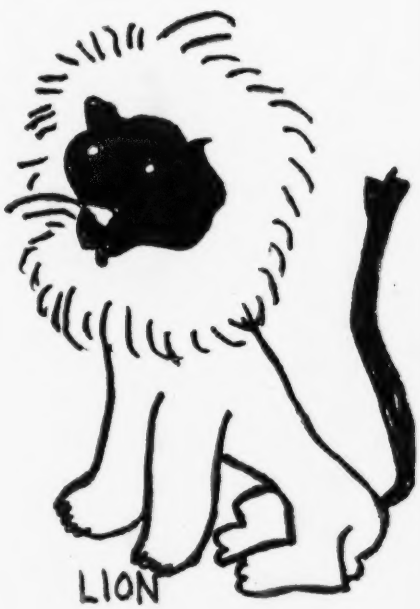
"R" "S" "H" "D" "C" "L" "M" E I E I O

SEVEN KEYS MAKE ALL OF THEM E I E I O

WITH A 2 - 6 HERE AND A 2 - 6 THERE

HERE A 2 THERE A 6 MAKE AN "L" WITH 2 AND 6

"R" "S" "H" "D" "C" "L" "M" E I E I O



M

2 - 7

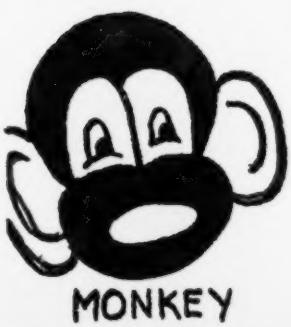
"R" "S" "H" "D" "C" "L" "M" E I E I O

SEV - EN KEYS MAKE ALL OF THEM E I E I O

WITH A 2 - 7 HERE AND A 2 - 7 THERE

HERE A 2 THERE A 7 MAKE AN "M" WITH 2 AND 7

"R" "S" "H" "D" "C" "L" "M" E I E I O



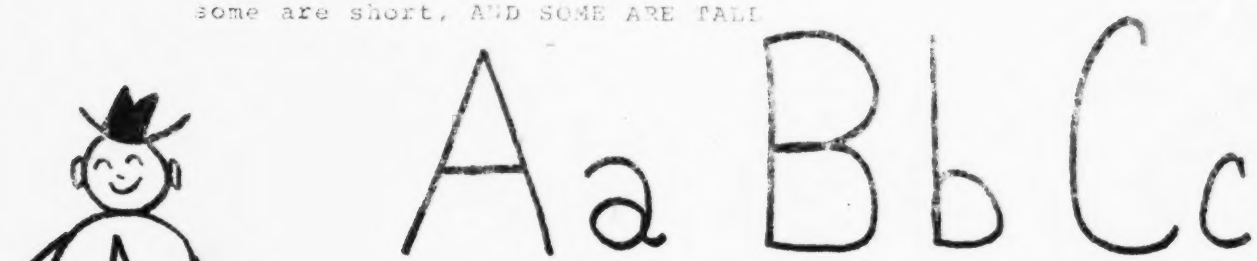
TIME OUT: CAPITALS

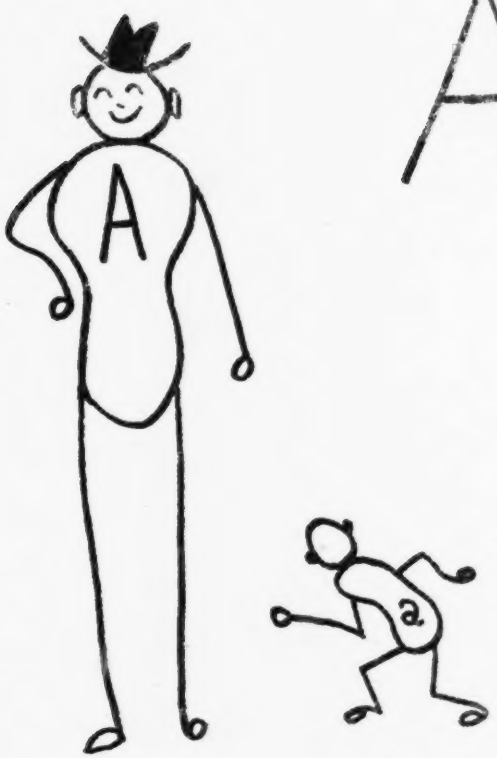
BEFORE GOING ON TO GAME NUMBER THREE

Look at these letters to see what you see

SOME ARE LARGE, and some are small

some are short, AND SOME ARE TALL



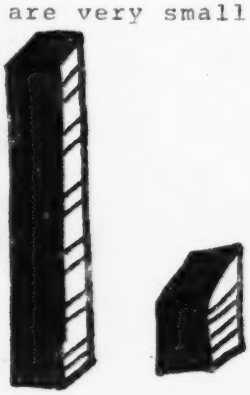


THE TYPEWRITER KNOWS HOW TO TYPE EACH ONE

TO LEARN WHICH KEYS IS LOT'S OF FUN

THE CAPITALS ARE RATHER TALL

the little letters are very small



SO LETTERS ARE BOTH LARGE AND small

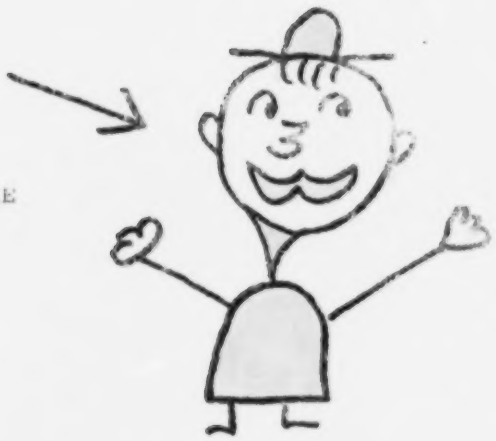
"6" then "7" MAKE CAPITALS "TALL" (SHIFT LOCK) 6 - 7

When your use for "CAPS" IS done

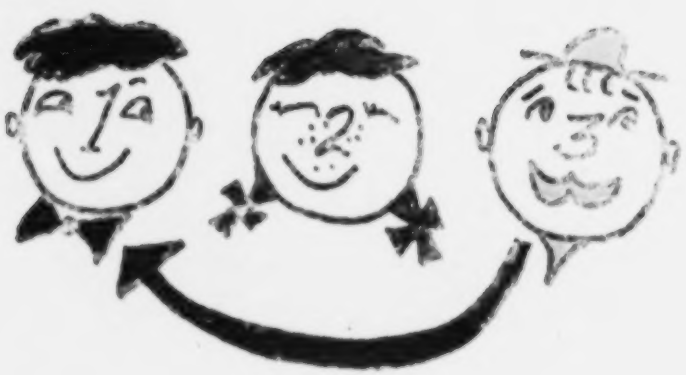
Go back to small by "6" then "1" (SHIFT UNLOCK) 6 - 1

CAME NUMBER THREE

LOOK AND SEE, THE BOSS IS "3"
HE TEAMS UP WITH EVERY KEY
"3" IS ALWAYS FIRST THIS TIME
SO HIT "3" NOW TO START EACH RHYME



"3" IS HIT, THEN BACK TO "1"
"U" IS THE LETTER IN THE MIDDLE OF FUN
FUN, RUN, GUN, SUN,
"U" IS TYPED WITH "3" THEN "1"

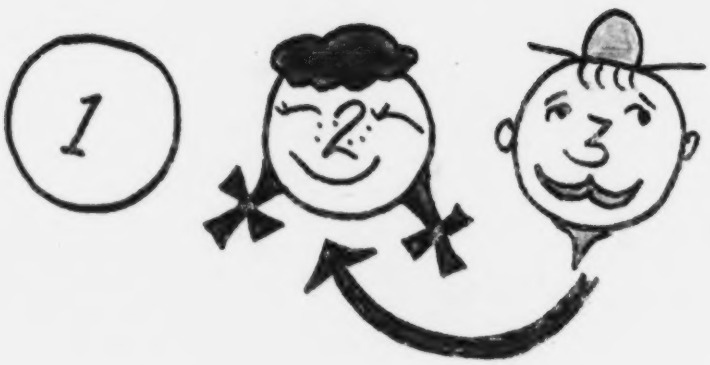


NEXT COMES THE TEAM OF "3" AND "2"

WORDS WITH "F" ARE QUITE A FEW

"3" THEN "2" AND "F" IS THE LETTER

TAKE IT SLOW, YOU'RE GETTING BETTER



HIT "3" ONCE, HIT "3" AGAIN

"P" POPS UP FROM THE TYPING PEN

THE EASY TEAM OF "3" AND "3"

LIKES TO TYPE THE LETTER "P"

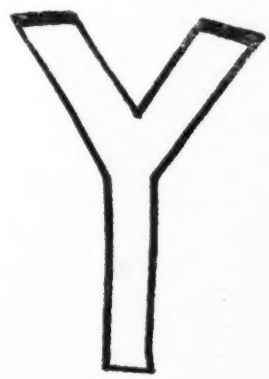
P

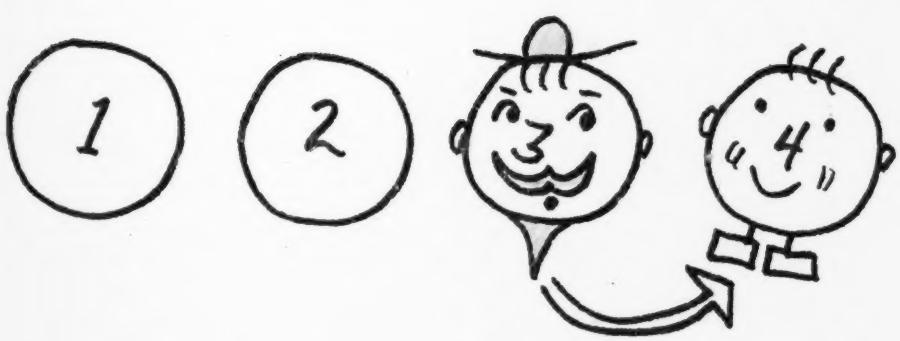
NOW WE'RE UP TO "3" THEN "4"

EACH RHYME HELPS US LEARN SOME MORE

"3" THEN "4' MAKES A "Y"

IT STARTS IN YOU AND ENDS IN TRY



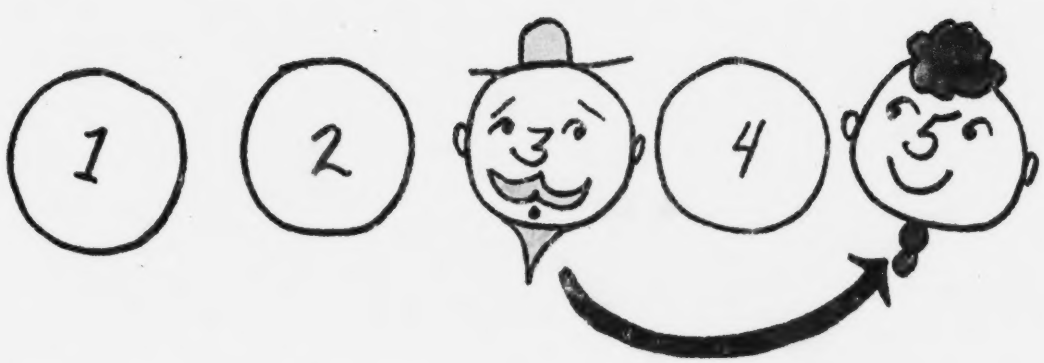


"3" AND "5" IS THE TEAM FOR NOW

TO MAKE A "B" THAT IS HOW

U, F, P, Y, WE MADE WITH "3"

NOW "3" AND "5" TYPE THE LETTER "B"



HIT "3" FIRST, THEN HIT "6"

EACH TEAM DOES ITS MAGIC TRICKS

"3" IS BOSS SO START WITH "3"

HIT "3" THEN "6" YOU TYPE A "G"

U, F, P, Y, AND B, AND G

ALL ON THE TEAM OF NUMBER "3"

"3" THEN "7" MAKES "W" NOW

"3" IS FINISHED, TAKE A BOW

THESE ARE THE LETTERS, LOOK AND SEE

WE HAVE LEARNED FROM CAPTAIN "3"

SAY THEM SLOWLY, THEY WON'T TROUBLE YOU

"U" "F" "P" "Y" "B" "G" AND "W"

61

TIME OUT: THE COMMA ,,,,,,,,,,,,,,,,,,,,,,,,

AND OTHER "DOUBLES".....

SISTER, BROTHER, DAD, AND MOMMA,

IN ANY LIST WE USE THE COMMA,

HIT "5" ONCE, HIT "5" AGAIN

YOU'11 TYPE A COMMA,,,, THERE AND THEN.

TRY TO REMEMBER ALL THE "DOUBLES"

THEY WILL HELP IN READING "TROUBLES"

REMEMBER BACK WITH "1" AND "1"

WE MADE "SPACES" JUST FOR FUN?

WITH "2" AND "2" WE MADE AN "S"

WITH "3" AND "3" WE MADE A "P"

DO YOU REMEMBER "4" AND "4" ?

WHICH WE LEARNED SOME TIME BEFORE?

"4" AND "4" MAKE PERIOD, ALSO CALLED A DOT

"5" AND "5" MAKE COMMA, NOW WE KNOW A LOT

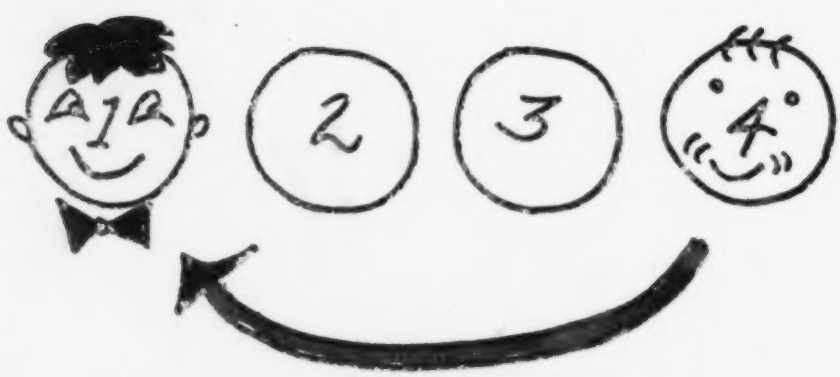
"6" AND "6" MAKE THE CARRIAGE RETURN

DOUBLES ARE VERY EASY TO LEARN

GAME NUMBER FOUR

NUMBER "4" STEPS FORWARD NOW
TO TAKE COMMAND AND TELL YOU HOW
TO TEAM UP "4" WITH EVERY KEY
AND EVEN LEARN THE LETTER "Z"

START WITH "4" THEN BACK TO "1"
"V" IS THE LETTER YOU HAVE DONE
HIT "4" THEN "1" YOU MAKE A "V"
"V" IS FOR YOUR VICTORY

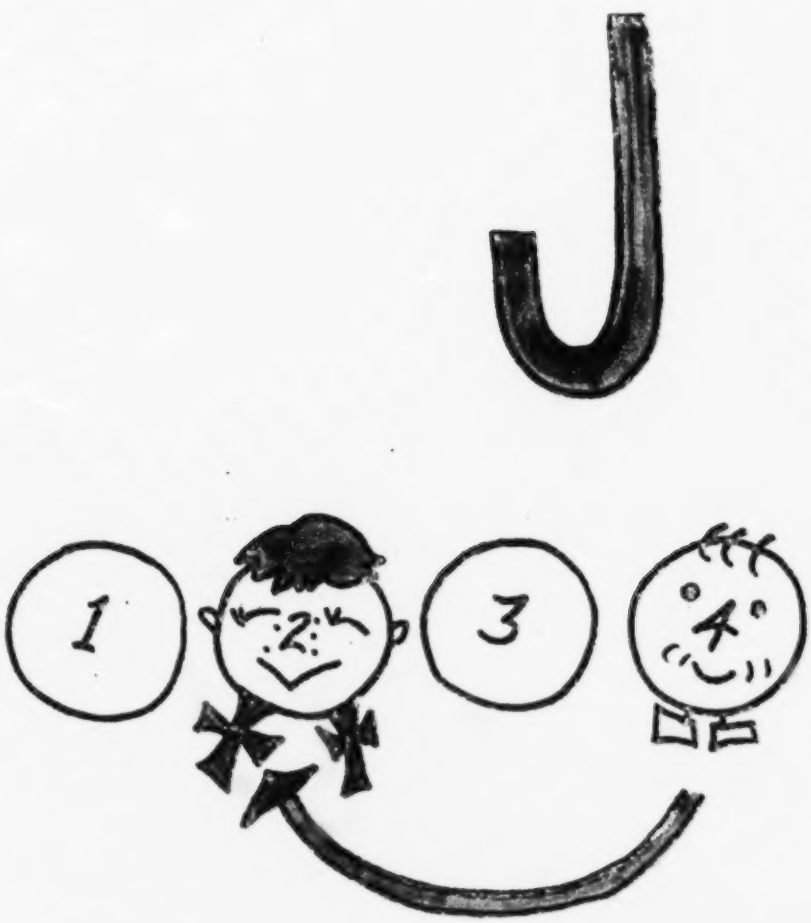


BY NOW YOU KNOW JUST HOW TO PLAY

NEXT WILL COME THE LETTER "J"

CAN YOU GUESS WHICH TEAM OF KEYS?

"4" THEN "2", WE WON'T TEASE

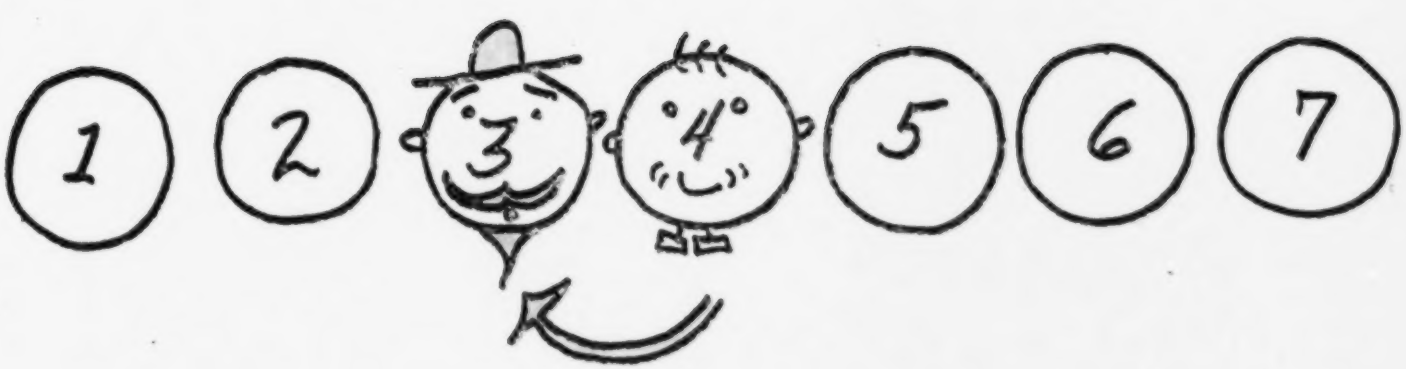


"4" THEN "3" TYPE A "K"

THAT'S THE LETTER TO FOLLOW "J"

FIRST HIT "4" THEN HIT "3"

"K" IS TYPED, "K" FOR "KEY"



AT THE END OF EVERY LINE

MAKE A DOT OR PERIOD FINE.

HIT "4" ONCE, HIT "4" TWICE

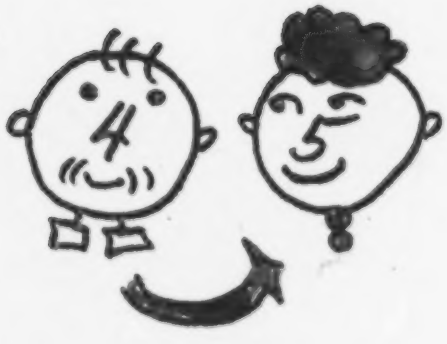
DOT..DOT..DOT.. VERY NICE.....

HERE'S A TRICK NOT YET SEEN

WITH "4" AND "5" TYPE "Q" FOR QUEEN

HIT "4" THEN "5" TO TYPE A "Q"

THIS TEAM MAKES A "Q" FOR YOU



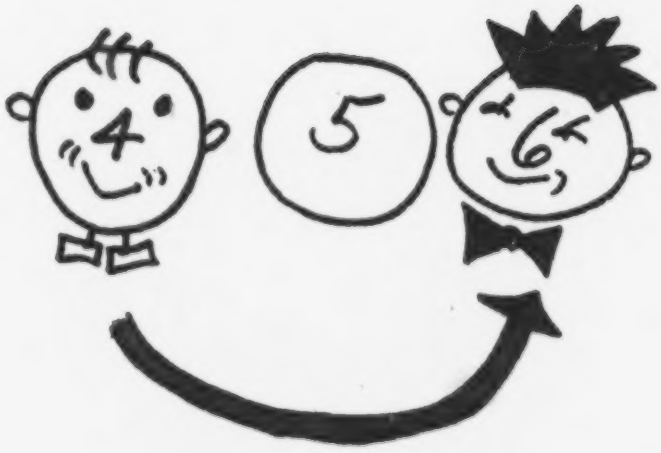
BUZZING BEE, HEAR THAT "Z"

HIT "4" THEN "6" SO YOU SEE

FIRST HIT "4" THEN HIT "6"

"Z" ALMOST ENDS OUR MAGIC TRICKS

Z

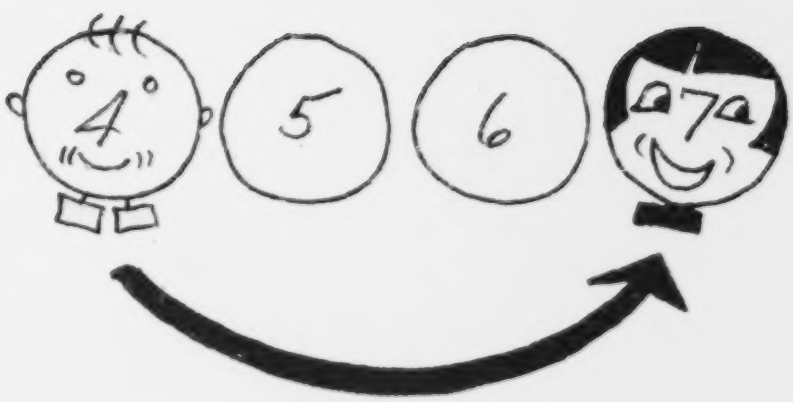


"4" THEN "7" WHAT DO YOU SAY?

DO YOU KNOW HOW TO SPELL X-RAY?

IN XYLOPHONE "X" SOUNDS LIKE "Z"

HIT "4" THEN "7" AND "X" YOU'LL SEE



"4" THEN "7" WHAT DO YOU SAY?

DO YOU KNOW HOW TO SPELL X-RAY?

IN XYLOPHONE "X" SOUNDS LIKE "Z"

HIT "4" THEN "7" AND "X" YOU'LL SEE

4-1 V

4-2 J

4-3 K

4-4 •

4-5 Q

4-6 Z

4-7 X

71

Experimental Message Outline for "Cyber-Go-Round"

(Printed)

PAIN

1. MY [HEAD | EYES | EARS | TEETH] HURT(S).
2. I HAVE A SORE THROAT.
3. I HAVE PAINS IN MY CHEST.
4. I ACHE ALL OVER.
5. MY [HANDS | ARMS | FEET | LEGS] HURT(S).
6. MY [NECK | BACK] HURTS.
7. MY STOMACH HURTS.

DISCOMFORT

8. MY

HEAD	EYE	EAR	NOSE
NECK	BACK	CHEST	ARM
HAND	LEG	FOOT	STOMACH

ITCHES.

9. I AM [COLD | HOT.]
10. I FEEL SICK TO MY STOMACH.
11. MY HEAD FEELS CONGESTED.
12. I HAVE A COLD.
13. SOMETHING IS IN MY EYE.
14. I HAVE TO BLOW MY NOSE.
15. PLEASE MOVE MY FEET.
16. I AM UNCOMFORTABLE, PLEASE HELP ME.

73

17. IS IT TIME TO TAKE MY MEDICINE?

18. MY MEDICINE MAKES ME FEEL ILL.

EVACUATION

19. I HAVE TO GO TO THE BATHROOM.

20. I HAVE DIARRHEA.

21. I AM CONSTIPATED.

HYGIENE

22. PLEASE WASH MY

FACE	NECK	CHEST
LEGS	ARMS	HANDS

23. PLEASE BRUSH MY

TEETH	HAIR.

24. PLEASE CUT MY

HAIR	FINGERNAILS	TOENAILS.

25. I WOULD LIKE MY DEODORANT.

CLOTHING

26. I WOULD LIKE TO WEAR

SLACKS	SWEATER	STOCKINGS
SKIRT	SHORTS	SOCKS.

27. PLEASE

PULL UP	PULL DOWN

MY ZIPPER.

28. PLEASE

BUTTON	UNBUTTON

MY SHIRT.

29. I WOULD LIKE TO CHANGE MY CLOTHES.

30. I WOULD LIKE TO BUY SOME NEW CLOTHING.

COMMUNICATION

31. PLEASE TURN | ON | OFF | THE | TV | RADIO | RECORD PLAYER.

32. PLEASE TURN OVER THE RECORDS.

33. WOULD YOU PLEASE CHANGE THE TV TO CHANNEL

2	3	4	5
6	7	8	9
10	11	12	13.

34. I WOULD LIKE TO READ A BOOK.

35. I WOULD LIKE TO READ A | NEWSPAPER | MAGAZINE.

36. WOULD YOU PLEASE TURN THE PAGE?

37. I WANT TO TYPE.

38. I WOULD LIKE TO USE THE TELEPHONE.

39. WHAT IS YOUR NAME?

40. I FEEL GOOD.

41. TODAY I AM | HAPPY | SAD.

42. WHAT DO YOU WANT?

43. I WOULD LIKE TO HELP PLAN THE | MEAL | PARTY.

44. WHEN ARE THEY COMING?

45. I WOULD LIKE TO GO VISITING.

46. I WOULD LIKE TO GO SHOPPING.

47. I LIKE | HIM | HER | YOU.

48. | SHE | HE | LIKES ME.

49. I LIKE WHAT YOU ARE WEARING.

50. THANK YOU FOR COMING TO SEE ME.

51. [HOW IS | WHERE IS] MY [MOTHER | FATHER | SISTER | BROTHER] ?

52. HAS MY [MOTHER | FATHER] CALLED?

53. I WOULD LIKE TO GO TO [CHURCH | TEMPLE.]

54. I WOULD LIKE TO GO TO THE MOVIES.

55. I WOULD LIKE TO GO TO THE CONCERT.

56. I WANT TO BE WITH MY FRIENDS.

57. I WOULD LIKE TO GO TO THE LIBRARY.

58. I WOULD LIKE TO GO TO A MUSEUM.

HUNGER

59. I [AM | AM NOT] HUNGRY.

60. WHAT IS FOR [BREAKFAST | LUNCH | DINNER] PLEASE?

61. I WOULD LIKE A [DESSERT | SNACK.]

62. I WOULD LIKE SOME SEASONING ON MY FOOD, PLEASE.

63. I WOULD LIKE MY DESSERT [NOW | LATER]

THIRST

64. I WOULD LIKE SOMETHING TO DRINK.

SLEEP

65. I AM TIRED.

66. I WOULD LIKE TO LIE DOWN.

67. PLEASE WAKE ME AT

1	2	3	4
5	6	7	8
9	10	11	12

O'CLOCK.

MISCELLANEOUS

68. WILL YOU PLEASE HELP ME?

69. PLEASE [OPEN | CLOSE] THE DOOR.

70. PLEASE [TURN ON | TURN OFF] THE LIGHT.

71. PLEASE [OPEN | CLOSE] THE WINDOW.

72. PLEASE MOVE ME [INTO | OUT OF] THE SUNLIGHT.

73. I WOULD LIKE TO GET [INTO | OUT OF] THE [CHAIR | BED]

74. WHAT CAN I DO NOW?

75. WHAT TIME IS IT?

76. WHEN WILL THE [MOVIE | CONCERT | TRIP] BE?

77. I SMELL SOMETHING BURNING.

78. [SOMEONE | SOMETHING] FRIGHTENED ME.

79. I AM AFRAID.

80. THERE IS SOMETHING I WANT, BUT IT IS NOT ON THIS LIST.

77

Pilot Experimental Messages for " Cyber-Go-Round"

(Pictorial)

Introduction to Pilot Experimental Messages For "Cybe.-Go-Round" (Pictorial)

The 62 pictorial slide message units which are illustrated in the following pages represent the results of the first phase of C/R/I' s study and evaluation of the uses of the "Cyber-Go-Round" system as a medium for the communication of both personal needs and curriculum content.

This pilot set is designed to provide a means of conveying personal needs. Among the anticipated directions and results of further research are: (1) the continuing refinement of the slide-messages with particular attention to the level of vocabulary used; (2) the production of additional pictorial message sets adapted to various levels of achievement and maturation; (3) the addition of appropriate audio-tapes which, when used in conjunction with the slide-message sets, would enable teachers or students to instruct themselves in the use of the Cyber-Go-Round man-machine communications (i.e., the result would be a set of completely self-instructional materials).

1

MY CHEST HURTS.

I 2

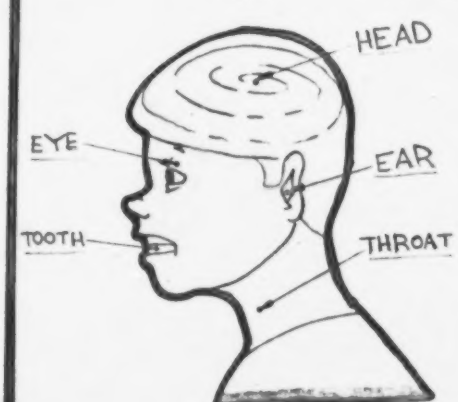
ALL OVER

MY 3

4

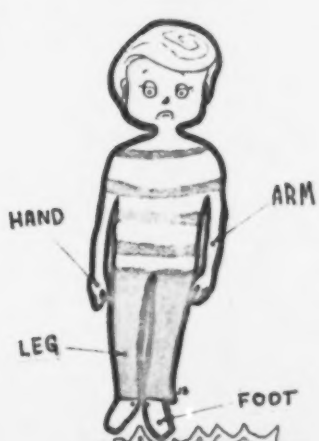
MY STOMACH HURTS.

MY 5



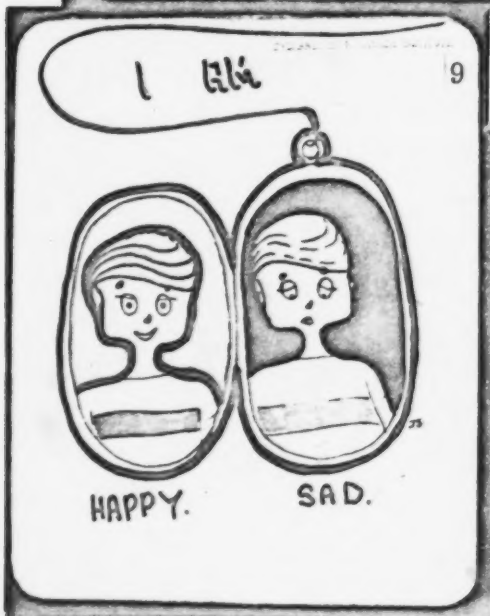
HURTS.

MY 6

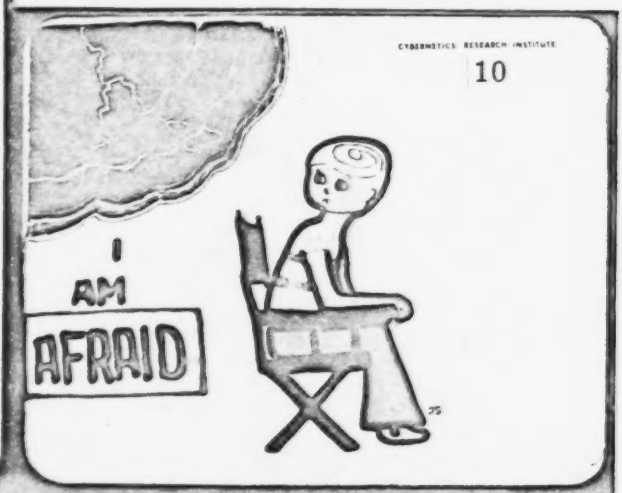


HURTS

8C



CYBERNETICS RESEARCH INSTITUTE



81

13

SOMETHING IS IN MY EYE

14

I AM

COLD HOT

15

IS IT TIME TO TAKE MY MEDICINE?

16

MY

ITCHES.

17

MY

ITCHES.

18

I HAVE TO GO TO THE BATHROOM.

19
I AM CONSTIPATED.
I [illegible] DIARRHEA.
20
I HAVE A
COLD.
I HAVE TO
21
BLOW MY NOSE.
22
I
WOULD
LIKE
SOMETHING
TO
DRINK
23
I AM NOT HUNGRY.
24
I
AM
HUNGRY

25

I WOULD LIKE SEASONING ON MY FOOD.

SHIRT PANTS SOCKS 26

I WOULD LIKE TO WEAR

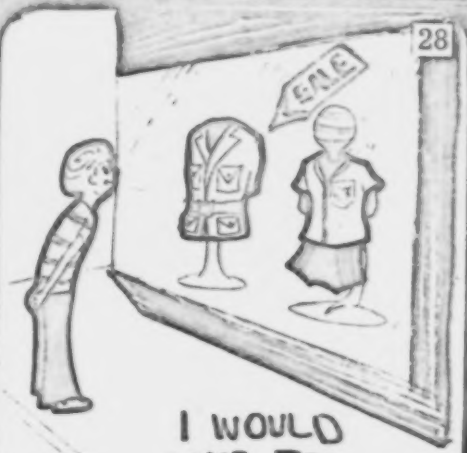
PLEASE 27

BUTTON

UN-BUTTON

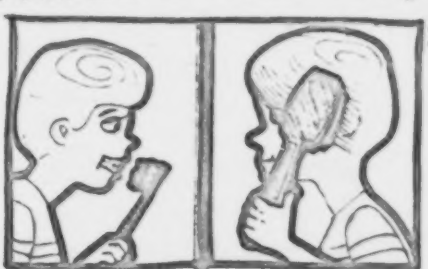
MY SHIRT.

28



I WOULD LIKE TO BUY NEW CLOTHING.

PLEASE BRUSH MY 29



TEETH | HAIR

PLEASE WASH MY 30

FACE

NECK

CHEST

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THANK YOU,

37

FOR COMING TO SEE ME.

38

BURNING

WHERE IS MY

39

MOTHER | FATHER

CYBERNETICS RESEARCH INSTITUTE

40

MOVE ME INTO/OUT OF THE SUNLIGHT.

PLEASE TURN

41

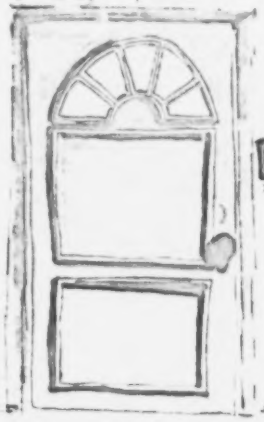
ON/OFF

THE LIGHT

PLEASE

42

OPEN/CLOSE



THE DOOR

86

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87

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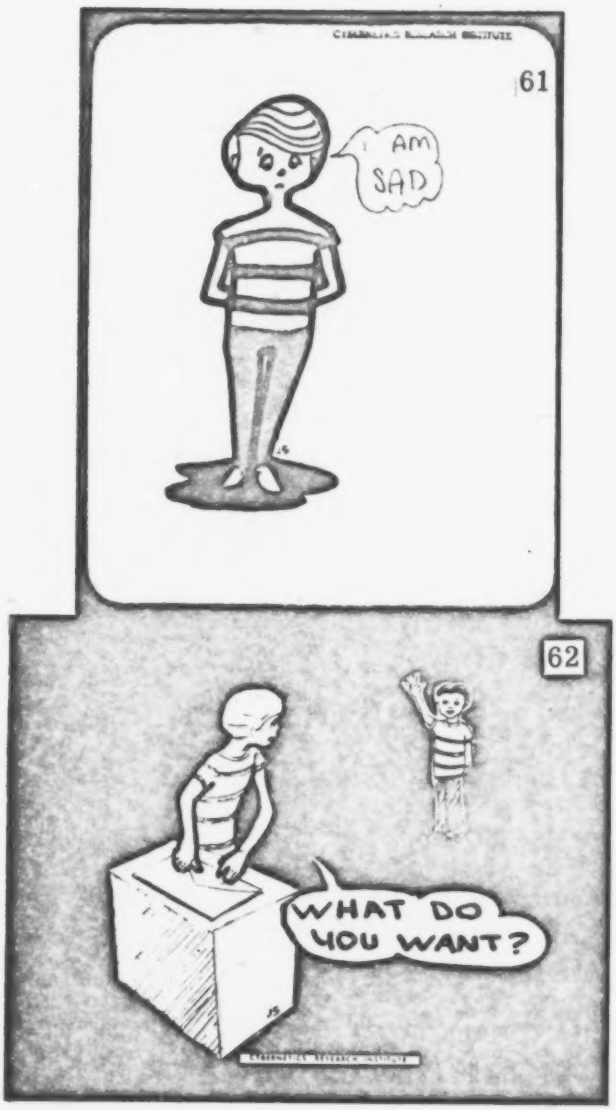

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